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Accounting Review

The Tax Depreciation Muddle

Some Thoughts About the International Congress
of Accountants

The Seven International Congresses of Accountants

Accountancy, Systematized Learning, and Economics

Accounting for Decision-Making

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Can It Be Defended?

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the Accounting Review

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THE TAX DEPRECIATION MUDDLE

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A RECENT study conducted by the authors has brought forth information which sheds light on the murky area of tax depreciation allowances.¹

The area of tax depreciation allowances has become a murky one because legislators, economists, businessmen, and the public generally have lumped into one category what are actually separate issues.

One of the issues involved concerns the adequacy of tax depreciation allowances based on historical cost during a period of continually rising price levels. This matter is of prime concern to those businesses which require a large investment in relatively long-lived plant and equipment facilities. Another aspect of the problem has to do with the administration of the depreciation sections of the Internal Revenue Code by the Internal Revenue Service. This aspect is of interest to all taxpayers who claim a deduction for depreciation. Complicating the issue further is a theory advocated by some economists and legislators which maintains that manipulation of the tax depreciation allowance is a suitable means for off-setting

the recessionary phase of the business cycle.

In an effort to obtain first-hand informa-

¹ This paper is based upon information collected from interviews held with 150 top-ranking executives of fifty-one major corporations. The project was undertaken under the auspices of the Indiana University Foundation for Economic and Business Studies. At the time, all three authors were on the faculty of the School of Business, Indiana University.

The firms studied make up a major sample of the nation's capital investors. In 1959 their plant and equipment spending accounted for \$8 billion, about 25 per cent, of the total \$33 billion of such expenditures reported by the Department of Commerce.

The distribution of the cooperating firms by industries is as follows:

1. Five of the six largest rubber makers.
2. Five of the six largest steel companies.
3. Six of the eight largest chemical firms.
4. Four of the top five non-ferrous metal companies.
5. Four of the top five automobile manufacturers.
6. Three of the top four oil companies and two smaller companies.
7. Three of the top five utilities and one smaller utility.
8. Two of the top eight rails and three smaller rails.
9. Two of the top three airlines.
10. Two of the top three electrical equipment makers.
11. Four agricultural and other heavy equipment makers.
12. Five miscellaneous firms of comparable size, including: (a) office machines; (b) glass; (c) soap; (d) dairy products; and (e) heavy construction.

tion which might help clear up the issues, the authors asked 150 top executives in fifty-one major corporations for their views on the need for, and direction of, "depreciation reform." In addition, facts were obtained which would indicate the impact such reform might have on the capital-spending program of each firm.

After evaluating the mass of accumulated opinions, attitudes, and policies, the authors reached these conclusions:

1. Present tax depreciation allowances are unsuitable for longrun modernization or even maintenance of America's industrial machine, and substantial agreement exists among top managements as to the need for reform legislation.
2. Major corporation managements are willing to give up capital gains treatment of gains arising from the sale of depreciable plant and equipment in order to lessen the impact on Treasury revenue of needed tax depreciation reform.
3. Small businesses can be permitted the more liberal tax depreciation allowance methods on used property newly acquired which is presently denied.
4. The role of tax depreciation allowances in the capital expenditure analysis process is definitely not standardized among large corporations.
5. Needed legislation to effect tax depreciation reform *will not* substantially alter plant and equipment spending in the short run (12 to 18 months).
6. Legislation of tax depreciation reforms is needed to encourage long-run additions to plant and equipment spending levels.

Need Exists for Reform

The executives interviewed were in almost unanimous agreement that reform is needed in the depreciation sections of the

Internal Revenue Code. A portion of this general feeling is based on the procedural difficulties experienced in dealing with the Internal Revenue Service on depreciation matters, but a more substantial basis is found in the existence of persistent inflation. Continual inflation, such as that experienced in the past two decades, has placed a great burden on business managers responsible for stewardship of productive facilities. The increased burden stems from a depreciation charge based on historical cost. Under this traditional depreciation-charging process, there is a failure to charge against revenues earned by assets sums sufficient to provide for replacement of the expired assets at current price levels.

Unfortunately, many accountants, economists, and congressmen seem inclined to the view that the depreciation charge is nothing more than an ambiguously defined deduction which reduces taxable income and hence tax revenue. But depreciation is more than this. Depreciation is the logical procedure by which American industry provides continuity for its productive capacity. This is most clearly seen if one asks himself: "Why shouldn't businesses pay out their reported profits—and their depreciation charges as well?" Clearly the answer must be: "In order to provide for their productive facilities on a going-concern basis." Yet, paradoxically, achievement of this objective of providing for the continuity of productive capacity through time can be reached only by providing for the replacement of facilities at *current costs*.

Businesses should not be required to "pay a tax on capital" because of misstated and inadequate depreciation allowances. This may occur, however, when taxes are determined on a historical cost basis in a period of rising prices. It would seem that economic theory, as well as accounting theory, should support management's view that depreciation must be

based on current costs if facilities are to be maintained on a going-concern basis.

The threat of failure to maintain the firm's productive capacity due to inadequate tax depreciation allowances did not prevent the corporate officers interviewed from differing significantly on tax depreciation reform measures. The proposal drawing the most support (roughly half the sample firms interviewed) was what has been called the "class-rate" plan, the "bracket" plan, or the "Canadian Broad Category" plan. Classes would be set up for a dozen or more broad groupings of assets under these plans. Minimum lives would be set for the assets falling in the classes, and businessmen would be permitted to use for tax depreciation purposes any life in excess of the assumed liberal minimum lives.

Such a plan has been in operation in Canada for over a decade. The interviewed executives of firms having Canadian subsidiaries were enthusiastic about the operational simplicity of this approach. Its benefits are the removal of the requirement to substantiate, *post facto*, length of asset life and rates to the satisfaction of the reviewing agent plus the very liberal minimum lives allowed.²

A second group of policy makers (representing roughly one-fourth of the firms interviewed) believes the ultimate solution to inadequate tax depreciation allowances lies in price level adjustment of the depreciation charge. Typically, such adjustments are made by "indexing" the cost of depreciable facilities, much in the manner provided for in wage escalator clauses. As the price level goes up the current depreciation allowance would be charged in terms of the current purchasing power of the dollar, not that of years gone by.

Within the price-level adjustment proposals one stands out above all others. It is the *re-investment depreciation proposal* advocated most strongly by the steel industry. The position taken differs sig-

nificantly from the others in that, under the plan, the firm must adhere to strict historical cost depreciation over the life of its assets. When such assets are retired—but only if the firm re-invests in some type of fixed asset—a determination is made of the amount of inflation or deflation occurring in the period since acquisition of the retired facility. Additional depreciation may be charged, or carried forward, as a supplementary adjustment of patently inadequate historical cost depreciation on the retired facility. The plan has the advantage of tying closely the firm's need for funds *at replacement time* and of adhering to objective, verifiable costs until actual replacement costs have become a fact. Unfortunately, as the comptroller of one of the interviewed corporations put it, "The plan ignores the time value of money in that such supplementary depreciation charges should be available to the firm as inflation progresses." Though important, the objection is not fatal, and the plan is being studied to incorporate accrual of the supplementary depreciation charge as inflation progresses.

A last group of executives stated, rather strongly, that replacement of retired assets could be insured through adequate financial planning by management. They believe that imaginative pricing policies and conservative dividend payments can provide retained earnings sufficient to allow for higher replacement costs. While the consensus of this group is that present depreciation allowances should remain unaltered, a small portion of these executives did indicate that they felt a lower corporate tax *rate* was needed to provide funds for plant maintenance and future growth.

Theoretical objections should be raised to counter this do-nothing attitude towards depreciation reform in view of the

² Such a proposal has been advocated in General Revenue Revision Congressional Hearings by the Controllers Institute of America and by the Chamber of Commerce of the United States.

overwhelming concensus that present allowances are inadequate to provide positive incentives for long-run maintenance and improvement of the nation's productive facilities.

The first such objection relates to the inequity which exists in the present depreciation environment because of differences in the asset make-up among firms and industries. This diversity of fixed-asset requirements was the subject of extensive research by the authors.

A major conclusion drawn from that research is that the ratio of depreciable assets to total assets, and, more importantly, the ratio of depreciable assets to revenues, varies significantly among industries. The extremes in the dozen-industry sample are as follows: The rail industry (utilities approximately the same) recovered in net profit after taxes 4.58 cents for each dollar which they had invested in plant and equipment. At this rate, they would have to dedicate 22 years' net profit after taxes to acquire the fixed asset complement necessary to engage in business in the industry. At the other extreme, electrical equipment makers (rubber makers and automobile manufacturers approximately the same) recovered 28.45 cents in net profit after taxes for each dollar invested in plant and equipment over the same period. At this rate, they would have to dedicate only 3.5 years' net profit after taxes to acquire the fixed asset complement to engage in business in the industry. The conclusion follows that, in a period of rising prices, a uniform corporate tax rate falls very unevenly on industries holding dissimilar mixes of depreciable and non-depreciable properties of varying lives, due to adherence by the taxing authority to historical cost as the basis for tax depreciation.

A second objection to the do-nothing attitude deals with the concept that prices can be increased to offset the excessive taxes resulting from inadequate deprecia-

tion allowances. That increased prices can in fact offset these excessive taxes cannot be argued. However, with an effective corporate tax rate of 50 per cent or more, the price increases must be twice as high as the desired amount of after-tax retained earnings. This places the Treasury Department in the position of sharing in price hikes to the consumer; though it is productive of revenue, it would appear to be a poor basis on which to set the nation's tax policy. Complicating this aspect even further is the inability of regulated industry to pass on a price increase to cover inadequate depreciation allowances. This raises another question of inequity among corporations subject to the same corporate tax rate.

As previously indicated, 75 per cent of the executives interviewed contended that depreciation allowances would be inadequate for the long run if reliance is placed on historical cost spread over useful life as the basis for depreciation. They disagree strongly with the one-executive-in-four who would place sole reliance on enlightened corporation financial planning. In rejecting the arguments of this minority group, they can argue correctly that the minority had relatively high profits after taxes when compared to fixed asset investment. Those in favor of the "status quo" on depreciation allowances had an average period of net profit after taxes required to recover net plant and equipment investment of 5.5 years. It appears that this group would be best able to offset any deficiencies in tax depreciation allowances created by adherence to historical cost spread over useful lives.

Much of the general increase in the economic well-being in this country can be laid to an increasing ratio of capital equipment per industrial worker. As such, it is difficult to defend a policy which shifts a relatively larger share of the tax burden to those industries or firms that have invested in fixed facilities and have

thus fostered this economic well-being. In a period of rising prices, however, the modernization which produces a higher capital to labor ratio is accompanied by a disadvantageous shift in the tax burden under present concepts of income determination. Such a policy does not appear wise for the long-run growth of the nation's productive might.

Impact on Treasury Revenues

One of the standard objections raised to a substantial change in tax depreciation allowances deals with the resulting loss in treasury revenues brought about by larger deductions. This problem was discussed with the 150 interviewed executives and the synopses of their comments are as follows:

1. Business would be willing to give up capital gains treatment of gains arising on the sale of depreciable plant and equipment as is now allowed under section 1231 of the Internal Revenue Code of 1954, in the event substantial tax depreciation allowance change could be legislated. This capital gains treatment has been a stumbling block in the path of substantial depreciation reform in that the Treasury Department has tried without success to do away with this provision of the Code. The Treasury Department has objected to the abuse that may occur when depreciable plant or equipment is rapidly written off to a low basis and sold at a gain. In such a case there is conversion of ordinary income into capital gains income through the depreciation-charging process. Officers of only two firms seriously objected to dispensing with section 1231 as part of a tax depreciation reform "package."

2. Liberalized depreciation should be made available to small businesses that acquire used assets (the present law restricts such treatment to new assets). However, the feeling was that this practice could not be made retroactive to assets already held as the revenue impact would

be too great under such a change.

3. Any reduction occurring in treasury revenues would be short-lived. Officers in thirty of the sample firms pointed to their experience under rapid depreciation permitted by the Certificates of Necessity and the favorable write-offs permitted by the 1954 Code and concluded therefrom that substantial depreciation reform would alter their capital spending stream significantly—but not in a twelve-to-eighteen-months period. As will be brought out in a subsequent section, rational business behavior dooms the likelihood of substantial short-run shifts in plant and equipment spending as a result of legislation of more favorable allowances.

Nevertheless, when the question of longer-run stimulation of plant and equipment was raised, three out of four of the corporate advisers interviewed indicated that substantial depreciation reform would definitely be stimulating to their plant and equipment acquisitions. This group reasoned that, if average Treasury revenues for approximately five years were considered, then corporate tax rates need not be altered for corporate tax payments would produce an equivalent amount of tax revenues—or even greater tax revenues—by significantly altering plant and equipment spending, and with it the general level of business activity.²

Somewhat more light may be shed on the question of short-run and long-run

² This position is supported by the Controllers Institute of America. Their view, expressed at the 1958 General Revenue Revision Hearings, was as follows:

... Nor should it be maintained that it (depreciation reform) should not be enacted because of revenue considerations. Any loss in revenue should be both small and temporary since the encouraged investment activity which would be generated should be productive of increased tax revenues from the new income sources generated.

See—G. L. Phillippe, Chairman, National Committee on Federal Taxation, Controllers Institute of America, testimony in *General Revenue Revision, Hearings before the Committee on Ways and Means, House of Representatives, 85th Congress, 2d Session, Part 1* (Washington: United States Government Printing Office, 1958), p. 1035.

Treasury revenues by examining the decision-making processes found in the cooperating firms in the area of plant and equipment expenditures.

Depreciation's Role in Capital Expenditure Decisions

The question as to what effect depreciation reform will have on the economy in the years to come has no easy answer. Yet, the answer will play a substantial role in influencing the legislation of tax reforms in the forthcoming sessions of the United States Congress.

There are two facets to the economic effects of more realistic depreciation allowances, as was previously intimated. One is the possible impact on capital spending in the short run, especially in a period of business down-turn. The other effect is that upon the long-run growth of the nation's productive resources. Both deal with increased capital spending fostered by the extra cash left in the hands of businessmen, since a smaller tax bite will result from larger fixed-asset cost write offs.

Short-run effects of liberal tax depreciation allowances. Let us look at the short-run possibilities in somewhat more detail. During the last two recessions many business leaders, economists, and members of Congress felt that increased depreciation allowances for tax purposes would prove to be "a shot in the arm," to capital spending. Or, in economists' terms, it would "aid in regularizing plant and equipment spending over the cycle." Such liberalization was to immediately point the way to recovery, it was intimated. A study of the manner in which businesses decide to spend their capital investment dollars shows that this is not true for the short run. A brief rundown on the capital-expenditure decision-making process is in order.

The spending-decision process is basically a two-step procedure. The first step is an estimate of the additional profits to be

gained by making any given proposed expenditure. These added profits (or cost savings) constitute the *operating advantages* of the project.

Once the advantages have been determined, the second step must be made. This second step consists of measuring the *level of acceptability* of the proposal, as evidenced by the operating advantages. This is done by applying a *measure of acceptability* to the operating advantages determined separately for each expenditure proposal. In firms where funds for capital expenditures are limited, the measure of acceptability allows the competing proposals to be compared with one another and ranked in the order of their potential worth to the firm. In the rare firm where funds for capital spending are plentiful, the measure of acceptability is used to insure that the dollar advantages of spending proposals measure up to some predetermined minimum figure of acceptability, usually the *average cost of capital* to the firm. A return on a project which falls below the average cost of capital for the firm would tend to dilute or lessen the return to total capital employed were the project not rejected by applying the measure of acceptability.

In the economic evaluation process just described, the determination of dollar advantages is basically an engineering problem. The measurement of acceptability, on the other hand, is financial and profit oriented, and is the place where liberalized tax depreciation allowances can have their impact.

There are three prominent measures of acceptability in use today among the firms studied. These are: (1) payback; (2) simple rate-of-return, and (3) time-adjusted rate-of-return. While each can have many variants, theoretical usage remains the same in spite of specific assumptions made by particular firms.

PAYBACK is simply the number of

years needed to recover the investment. The shorter the payback, the less the risk of the proposal (it should be noted that payback does not measure profitability). As an example of its computation, take the case of an investment of \$5,000 which will provide in addition after-tax profits of \$2,000 per year. The payback period is two and a half years, and is computed thus:

$$\frac{\text{Investment}}{\text{Annual Advantage}} = 2.5 \text{ years.}$$

The effects that the various degrees of liberal tax depreciation can have on capital expenditures measured with the payback measure is set forth in the first column of the accompanying chart, Table I.

SIMPLE RATE-OF-RETURN is merely the reciprocal of the payback computation, although it measures the profitability (not accurately, it should be noted) of alternative proposals. Simple rate-of-return is computed as follows:

$$\frac{\text{Annual Advantage}}{\text{Investment}} = \frac{\$2,000}{\$5,000} = .4 \text{ or a } 40\% \text{ rate of return.}$$

The problem with the simple rate-of-return, as with payback, is the variety of ways it can be used. For instance, investment can be gross or net of salvage, the initial amount of investment or the average investment over life, total investment or only the equity portion of investment. Advantages can be before or after financing costs, book depreciation, and taxes. The second column in Table I points up the effect of liberal tax depreciation on the acceptability of a proposal measured by the simple rate-of-return.

TIME-ADJUSTED RATE-OF-RETURN is different from the simple rate-of-return in that it accounts for the time dimension of money. It discounts the advantages of each future year to their present value. Thus, the advantages of more distant years

TABLE I
METHODS OF LIBERAL TAX DEPRECIATION ALLOWANCES
AND DEGREES OF PROPOSAL ACCEPTABILITY

(Expenditure Proposal's assumptions: (a) Investment, \$1,000,000 first year; (b) Annual Operating Advantage, \$400,000; (c) Economic Life, 10 years; and (d) Tax Rate, 50%).

Type of Tax Depreciation Allowance	Payback (In Years)	Simple* R-of-R %	Time Adjusted R-of-R %
Straight Line	4.0	15.0	21.4
Sum of the Years-Digits	3.6	19.1	23.2
Double-Declining Balance	3.6	20.0	22.9
Five Year Amortization	3.1	20.0	24.4
Expensing in Initial Year	2.7	30.0	27.1

* Note: Simple rate-of-return is computed in the above example using the initial year advantages only and is taken after taxes and using the same kind of depreciation for book purposes as is used for tax purposes.

do not count as much as those of less distant years, and projects which may have similar acceptability under the simple rate-of-return can differ substantially in acceptability when measured by a time-adjusted measure, simply because the advantages of the more favorable proposal may be bunched in the earlier years, while those of the second are earned evenly over the life span or are bunched in the later years. The third column of Table I shows how the time-adjusted rate-of-return varies when the only factor changed is the speeding-up of the tax depreciation allowance.

Table I indicates that greater liberalization of tax depreciation allowances can make a capital-expenditure proposal look more favorable no matter which one of three basic measures is used. Why then, won't more liberal write-offs spur capital spending in the short run? There are two reasons: The first deals with the manner in which the measures are used in practice; the second, with the factor of cash availability.

The effects of liberal tax depreciation set

TABLE II
TYPES OF DEPRECIATION USED IN EXPENDITURE ANALYSIS

Acceptability Measure	Number of Firms Used	Number of Firms using it	Number of Firms Using Liberal Tax Write-Off in the Acceptability Computation
Payback	13	5	
Simple Rate-of-Return	24	15	
Time-Adjusted R-of-R	7	3	
	—	—	—
	44*	23	

* Note: In all, 48 firms were studied in this phase of the research; 4 firms make use of none of the three basic measures of acceptability, but rely instead on "judgement and subjective measurement" rather than formal analysis procedures.

out in Table I can have an effect on the capital spending of the whole economy only if a majority of business firms make decisions using a measure which takes into account the allowable *tax* depreciation. Unfortunately, only about half of the firms studied compute acceptability by using tax depreciation. Table II shows that only 23 out of the sample (cut to 48 in this statistical summary in view of the fact that three firms' company policy prevented thorough discussion of the analysis procedures) make use of the presently allowed tax write-offs in their measurement of proposal acceptability.

The second reason why more liberal write-offs have little influence on capital spending in the short-run is that for most business firms the supply of funds available for capital spending in the next year is limited. The capital expenditures made by such firms *this year* will be the same regardless of whether liberal depreciation, straight-line depreciation, or no depreciation is considered in the analysis. The only possible this-year effect of considering the liberalized applications would be a more accurate ranking of the proposals in the order of their desirability, thus insuring that the funds already earmarked for

spending are used to the best advantage. Of course, if funds can be provided for all proposals that meet a predetermined minimum level of acceptability—or if management is willing to anticipate future cash flows—then the liberal allowances can have an effect in the short run. This would come about by making more proposals fall above the minimum level of acceptability. Only a handful of firms indicated that they had unlimited funds for capital expenditures.

Long-run effects of liberal tax depreciation allowances. The effect that liberal tax allowances, even without a price level adjustment, can have on capital expenditures in the long run may be substantial. This is because the liberal allowances will reduce tax bills which over subsequent periods will enable firms to have more funds available for capital spending. The effect that this could have on the economy is quite favorable. One need only compare the recessions of 1949, 1954, and 1960 with that of 1958 to conclude that there is a strong presumption that recovery from such slumps in activity was more rapid in the latter period as a result of firms rapidly building up liquidity. Clearly, when liquidity is low the attitude towards investment is pessimistic, especially in a time of recession. To a large degree, the interviewed firms found themselves in a rapidly improving cash position in 1958-1959 due to reduced tax bills flowing from the previously legislated tax depreciation changes of 1954. It should be observed, however, that the current or short-run outlook for cash reserves does not in any way negate the basic premise of the majority of firms interviewed: that is, that depreciation allowances at present are inadequate for the long-run modernization and maintenance of the nation's productive machine.

For the individual firm, the present greater supply of funds is not provided *permanently* by tax deferral. Permanent

deferral comes only when the firm is able to avoid the greater taxes caused by smaller tax depreciation allowances in the later years of the life of its assets. In an economy without inflation, this can be accomplished simply by maintaining the current rate of capital spending. The first few years after the legislation of any liberalization (much as now) will see a "bulge" in the depreciation allowances which will level off after all facilities in any particular company come under the new plan. In effect, then, the liberalization brings about the much discussed "interest free loan" which need not be repaid as long as the firm does not decrease its capital investment.

In a period of increasing prices, the situation is not as favorable, even with greatly liberalized depreciation. Under these conditions, once the levelling-off period is reached after the "bulge," the effects of inflation will once again make themselves felt undiminished, unless the firm is expanding at a rate sufficient to allow the early year write-offs on new facilities to more than offset the "tailing off" of write-off on the old facilities. It is entirely possible that adequate long-run growth of the nation's productive facilities depends on having depreciation allowances which are both liberal and adjusted for price level changes.

Summary

Interviews with the top-level financial executives in fifty-one leading corporations have shown them to be seriously concerned with the country's tax depreciation policy. They stress that the administration of the present law by the Internal Revenue Service results in wasteful and annoying haggling over lengths of asset lives and salvage values. In addition, these executives indicate that adherence to any depreciation method based on historical cost alone fails

to adequately meet the problem raised by continuing inflation. However much accountants may desire to restrict depreciation to fixed asset historical cost, the interviews with 150 policy makers have re-emphasized management's concern with the problem of replacement of assets in a period of rising prices. Those in management interviewed agreed that, unless a firm has the stability of earnings and credit position which would permit it to acquire or replace plant and equipment by borrowing in perpetuity, funds for replacement and/or betterments can come from only three sources: (1) equity sales; (2) retained earnings (or borrowings, that ultimately must be paid out of retained earnings); and, (3) depreciation accruals. Any long-run augmentation of any one or more of these three sources represents recognized aid in management's solution to the problem of replacement. Concessions in the areas of capital gains and small business benefits were made, at the same time, by these leaders in "big business" as part of their long-range corporate tax "package."

The interviewed executives were in general agreement that favorable depreciation reform is needed for long run modernization and growth of the country's productive machine. An examination of their capital-expenditure decision-making processes has revealed, however, that stimulation is not immediate enough to enable depreciation reform to be used as a tool to fight business cycle recessions. Emphasis was placed on the fact that the results of adequate reform will make themselves felt in the decades which stretch into the future, not in the months immediately following the recognition of a business downturn. The tax depreciation muddle can only be muddied further by any attempt to use tax depreciation allowances as a means for short-run economic juggling.

SOME THOUGHTS ABOUT THE INTERNATIONAL CONGRESS OF ACCOUNTANTS

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THE Eighth International Congress of Accountants will be held during late summer or early fall of 1962 in New York. The American Institute of Certified Public Accountants will be the host organization. It will be the first time since 1929 (the Third Congress) that this international body will convene in the United States, and the third time since its genesis at St. Louis in 1904. To have a gathering of this sort in one's country is both an honor and a responsibility.

Three considerations have prompted the writing of the present article concerning the forthcoming Congress.

First it was felt that we cannot emphasize enough the international responsibilities which collectively accountants must either face or squarely admit that they are unwilling to bear. Mr. Kraayenhorf keynoted the urgency of some fullfledged international work and cooperation in his address to the 1959 annual meeting of the AICPA.¹ But there seems to have been very little follow-up.

We are confronted with different sets of accounting standards and practices in nearly every country outside the Soviet Sphere. These differences are insignificant in some instances, but among most economically independent nations the differences are pronounced. Regardless of any explanations for this phenomenon, the practical situation simply is that just by virtue of the different national accounting practices one and the same economic or business condition is reflected in a number of different ways in accounting reports. Without belaboring the point, there are for example quite a few large European corpo-

rations whose securities are openly traded in the United States and registered on the New York Exchange. In consequence these firms prepare at least two different sets of financial statements: one according to the accounting practices of their own country and for stockholder consumption at home; another one to meet United States standards and inform stockholders in the United States. What if these two sets of figures are at variance with each other? Apparently this does not perturb many accountants. Witness a 1959 KLM Royal Dutch Airlines Prospectus for the sale of subordinated debentures in the United States. U. S. dollar earnings per share were reported as follows:

Year	Per Dutch Financial Statements	Adjusted to reflect "generally accepted accounting principles" in the United States
1954	\$1.99	\$3.25
1955	3.82	5.26
1956	4.60	5.65
1957	4.12	5.18
1958	2.30	2.30

Source: Smith, Barney & Co., The First Boston Corporation, *Prospectus*, (\$18,500,000 KLM Royal Dutch Airlines 4 1/4% Convertible Subordinated Debenture Due 1979), p. 6.

Similar relationships in reverse hold true for United States firms operating abroad. Subsidiaries or affiliates domiciled in foreign countries have to meet local accounting standards for purposes of company registration, local management, business comparability, or what not. At the same time they may have to meet United States

¹ Jacob Kraayenhorf, "International Challenges in Accounting," *The Journal of Accountancy* (January, 1960), pp. 34-38.

standards to satisfy consolidation requirements, comparability with other parent company operations, needs of United States top management, etc. Again two different sets of financial data evolve, although the underlying events and transactions are identical.

It goes without saying that the responsibility to remedy these divergencies falls upon none other than the accounting profession itself. We live today in an era of increasingly closer international economic ties. Private international investment has soared in the last decade; and so has the United States' dependence on international raw material sources. Many United States firms derive sizable amounts of revenue from business outside the United States (e.g. International Business Machines, Colgate Palmolive, W. R. Grace, etc.). Narrow nationalism has outlived its usefulness, particularly in the realm of economic activities. Accountants the world over (let us say the free world over) would be well advised to draw the proper inference regarding their own narrow national pedestals.

Secondly, there appears to develop a certain polarity in the advancement of current accounting thought. This tendency should be thoroughly examined before it is subscribed to—implicitly as well as explicitly.

One pole of distinct accounting effort lies within the block of communist countries. They are developing systems and procedures strictly in the furtherance of their own centrally managed economies. Since their underlying assumptions about economic processes are radically different from those used for enterprise economies, their results emerge on an entirely different plane from that useful for economies not so organized. Hence this pole of activity holds some interest for us but does not critically affect accounting endeavors in the free world.

There are, however, two further cores of development which cannot be dismissed so easily. One is centered in Western Europe and spearheaded by the Union Européenne des Experts Comptables Economiques et Financiers. For short this organization is known as "U.E.C." It has done excellent work so far and is decidedly a major current force of accounting.

The U.E.C. was founded on November 17, 1951 in Paris and has as charter members twelve professional associations of certified accountants from the following countries: Austria, Belgium, France, Germany (West), Italy, Luxembourg, the Netherlands, Portugal, Spain, and Switzerland.² So far U.E.C. members have assembled three times for a general Congress: in Florence and Rome during October 1953, in Brussels during September 1955, and in Nice during September 1958. The U.E.C. works through twelve permanent committees on which membership revolves, and the committees prepare reports and present resolutions to the general congresses. Among the committees we find one for accounting practices ("techniques comptables"), one for audit practices ("revision comptable"), one for accounting and bookkeeping law ("droit comptable"), one for professional regulations ("organisation et statuts professionnels"), one for lexicology ("lexicologie comptable"), and others for tax systems, historical development, publications, education, and so on.

Three qualities contribute to the effectiveness of the U.E.C. (1) The periodic congresses of the organization are not regarded as ends in themselves. They are seen as "checkpoints" along a road of continuous cooperative accounting effort among members from all the countries represented. (2) The U.E.C. committee

² See the proceedings of the First U.E.C. Congress (Florence and Rome, 1953). French and German language versions are available.

structure functions at all times. The committees meet more often than the entire organization does and they enjoy autonomy of work. Materials available to or collected by individual committees are accessible to all other members of the organization. (3) The direction-giving organs of the U.E.C. can be credited with considerable foresight. Right at the outset of activities they embarked upon a program of first of all collecting facts. Now they are in the stage of assimilating terminology. Meanwhile much critical thinking was devoted to the subject of how large or small any differences between countries really are. This amounts to a fairly systematic preparation for solving some accounting differences between countries.

Whatever the U.E.C. will eventually accomplish, with or without the aid of other political or economic schemes of European integration, it represents a particular nucleus of accounting effort. But it is well to realize that the singular stress of the U.E.C. is directed toward the concept of "Europe." It is unmistakably clear that accounting practices and theories for *Europe* are their sole concern.

The other free world core of accounting development is concentrated in English speaking countries. There is a degree of similarity of accounting practices and subject matter preoccupation between Australia, Canada, Great Britain, Ireland, New Zealand, Scotland, and the United States. Accounting literature circulates reciprocally between these countries, and the common language basis makes it readily usable. Similar backgrounds of law and economic tradition may have facilitated the extent of accounting unity among those with predominantly Anglosaxon predecessors.

In addition the factor of economic influence comes to bear in the diffusion of basically Anglosaxon accounting precepts. India, for example, is establishing accounting practices which are in the Anglosaxon

tradition. This is probably both a function of historical and educational backgrounds and economic ties. Japan is evolving accounting practices specifically along United States lines, also quite probably in consequence of economic relationships. The same holds true for Mexico. The following is an excerpt from a private letter received from Price Waterhouse & Co. of Mexico:

Accounting standards and practices in Mexico are substantially the same as in the United States and the well-known U. S. textbooks are often referred to and supplemented by bulletins of the American Institute of Certified Public Accountants and other accounting organizations. The fact that Mexico is so close to the United States has influenced the profession here as a whole, and a good number of Mexican accountants have had some studies and/or indoctrination in the United States.⁸

Other instances could be related where United States accounting practices have "gone along" with certain forms of help and assistance. We understand that countries like Korea or Nationalist China do their utmost to emulate the United States, which extends to items like accounting practices or the collection of national statistics just as it does to personal habits and modes of dress. Analogously there are or have been links of influence between Great Britain and her Commonwealth. Thus the Anglosaxon tradition of accounting and the approach to its perpetuation and further development have also become a current core force of accounting, although more in the nature of a byproduct than as a direct result of consciously motivated activity.

Placing current accounting developments in a light of multi-directional efforts, the question of eventual results is open to interesting speculation. I have already pointed out that many Europeans are primarily concerned with uniformity and ready transferability within Europe. Uni-

⁸ Letter from Mexico City Office, dated March 4, 1960.

form accounting and uniform charts of accounts have always had much appeal there. Would it be in the interest of international harmony and independent but unduplicated and mutually beneficial accounting research if this were to become a panacea?

Accounting progress in the Anglosaxon countries also appears to have an introspective. The current emphasis on accounting research (see for example the gist of the papers read at the 1960 Annual Meeting of the American Accounting Association) does not seem to make provision for the fact that a global orientation is needed in order to gain fruitful premises. We can indeed ill afford to disregard those who pattern their standards and practices after Anglosaxon examples! And until there is a global validity to accounting theory and research, completeness will be lacking and the discipline will be unable to elevate itself from the ties of its historical apron strings.

My third and last reflection relates to the history of the International Congresses. The proceedings of each of them (seven all told) make for interesting reading, because they are in a sense a mirror of the accounting profession for more than half a century. But they also permit a penetrating insight into the nature of these convocations. Our conclusion from reading the various proceedings can be summarized as follows: the International Congresses of the past have had the character of grand forums, where many subjects and ideas have been extolled but promptly again forgotten; they also have provided appropriate time and space for delegates from many nations to laud the individual practices of the countries represented; they have not been, however, "working" sessions for those in attendance (notwithstanding, of course, the requisite efforts for physical arrangements and administration).

A convention atmosphere has prevailed

at these Congresses. Even though spoken some time ago, the words of Colonel Montgomery characterize the tenor of these international meetings:

This Congress is a grand, free-for-all checking-up party. We are proud only of what we accomplish when we can prove it to be good . . . The discussions must be critical, pertinent and constructive or we will be bored. We ask to be entertained or instructed. A word to the wise is sufficient!

I greet you all in the name of the Accountants of the United States. We salute you as brother practitioners in a great profession.⁴

The subject matters discussed during the later Congresses show more depth than those singled out for earlier gatherings. For example the 1929 Congress covered everything from the "Development of Professional Accounting in Continental Europe" to "Principles of Valuation," from "The Thirteen-Month Year Calendar Reform" to "Commercial Budgetary Practice."⁵ Six single topics were chosen for the business sessions of the 1957 Amsterdam Congress, and each was dealt with quite elaborately.⁶ Still it was little more than a presentation of different viewpoints and different national practices with some relevant discussion. There were, we are sure, many direct and implicit benefits for the Congress participants every time it convened. But a continuity of these discussions did not materialize, nothing has ever been decided or proposed at an overall Congress level, and the effects on the international whole of the accounting profession have been minute—at least in our opinion. Those who have attended one or several of the Congresses may differ with our evaluation. Yet an appraisal of the manifold accounting standards and practices the world over leaves little room for pointing to positive accomplishments

⁴ *Proceedings, International Congress on Accounting* (New York City, 1929), pp. 1083-1084.

⁵ *Ibid., passim.*

⁶ *Proceedings, The Seventh International Congress of Accountants* (Amsterdam, 1957), pp. 75-672.

achieved through the past *International Congresses of Accountants*.

The aggregate of the above considerations suggests that accountants so far have not utilized their talents very effectively on an international level. In fact the current state of the discipline, as described above, detracts from a smooth functioning of international business activity and shows signs of moving toward a cleavage in prospective concerted development. There may be many who are indifferent to these indications and shrug them off very lightly. I, for one, deem them highly undesirable. I believe that strong efforts should be made to establish some common denominators of accounting for all countries outside the Soviet Sphere. Reporting of accounting information and basic work on theory and major postulates should receive true international cooperation, and the benefits thereof should also be broadly available.

Mr. Kraayenho⁷ advocated two years ago that the American Institute of Certified Public Accountants take the initiative in establishing closer working relationships among the profession in different countries and ultimately promote work on international accounting standards and accounting theory based on global assumptions.⁷ I agree wholeheartedly with the objectives which encompass Mr. Kraayenho⁷'s proposal. But to my knowledge nothing tangible has resulted so far from his mandate. Probably the main hurdle toward implementation can be found in the fact that unilateral action by one country is not the best possible avenue of approach—particularly if this one country happens to be the United States.

I would like to make an alternate proposal. Borrowing some ideas from presently operating international organizations and adding a few of my own, I propose that the International Congress of Accountants take the initiative with respect to the challenge of accounting problems from an international viewpoint. The Congress is a

ready-made body of international opinion endowed with professional qualifications, and with little additional organization and administration it would hold a significant potential. It could utilize greater resources than are available in single countries, and at the same time it could draw on the largest possible reservoir of accounting experience.

My proposal is mainly a plea for bestowing a feature of permanence upon the International Congresses. In the initial stages the following three steps might accomplish this:

1. Establishment of a continually functioning executive organ for the Congress;
2. Appointment of some professional committees which would pursue continuous work on subject matters of accounting; and
3. Publication of a professional journal.

An executive branch for the Congress could be provided for by election at each of the Congress meetings at large. As a prerequisite to this a more formal structuring of the organization would be called for. The enabling steps in this respect could be quite simple.

One or two official delegates from each national association of certified or otherwise qualified accountants in the free world might be invited to the forthcoming International Congress and presented with proposals favoring (or at least outlining the feasibility of) an organized international body of accountants. If the proposals were found acceptable and useful, after some revision and modification, articles of association could be drafted and voted upon by the representatives of the national groups. Membership might be limited to national associations, and voting rights constituted by numbers of individuals represented by any respective association. A minimum and a maximum number of votes could be fixed for member associations. Also a small secretariate for

⁷ Jacob Kraayenho⁷, *op. cit.*

the organization might be called into life, and financial support agreed upon.

The secretariate could consist of a small executive committee, which should be elective and which should guide the professional work of the organization along with arranging for periodic International Congresses. In regard to the former it may be empowered to appoint members to professional committees. The latter would involve duties about the physical and financial arrangements for Congress meetings at large. For example Congresses might be planned with regular three year intervals. The present hosting by national associations could be continued.

Financial support for executive activities and other continuing effort deemed essential could have a variety of sources. Membership fees could be assessed from the national associations on a basis of individual membership in each, with a minimum fee limit. Also, the finances of each periodic Congress could be planned slightly above break-even amounts. Eventually publications, including the suggested periodical, may contribute to available financial means. Finally some initial grants from eleemosynary organizations could probably be solicited.

The proposed professional committees would retain and maintain contact among members on a continuous basis. Appointments, made through the secretariate, could revolve among national groups and limit personal service of any one member to given lengths of time. Generally the Congress as a whole could charge these committees with specific areas of work, although some executive discretion as to priorities might be essential. The committees in turn would work independently and would make independent recommendations, supported by justifications and giving dissenting opinions where applicable. Adequate publication of committee efforts and of committee recommendations should be insured.

At the start it might be advisable to create no more than three professional committees. This would focus attention more sharply on their activities, because a relatively concentrated workload could thus be assumed. The committee work would have to provide the "test case" for the proposed organization, and therefore diffusion should be avoided. I propose committees with responsibilities in the following areas:

1. Terminology and financial statements;
2. Accounting practices;
3. Auditing practices.

International collaboration on terminology and financial statement practices would undoubtedly have the advantage of quick results and practical usefulness. Language problems would definitely be encountered, but they are not insurmountable. Assets, liability, and owners' equity notions are present anywhere—hence a beginning can be made. Certain definitions can be postulated, even if it has to be done in a negative way by listing applicable exclusions. The nature of specific items can be identified, e.g. what is constituted by discounts on debt instruments or what is the nature of treasury stock.

Recommendations about financial statement classifications would also be in order. The international exchange of accounting information would be helped greatly if some recommendations could serve as guides in segregating current and long-term items, in showing assets and contra-asset accounts always on the same side of a balance sheet, etc. Is the European distinction between movable and nonmovable assets, for example, better than showing which assets are tangible and which are not? Should contributed equity capital always be set apart from earned equity capital? Is an overambitious provision for contingent liabilities to be shown among the definitive liabilities? These and many other terminology and statement questions

need international counsel and recommendations to which some international weight has been lent.

We do not need uniformity after the fashion of some European uniform plans of accounting, but we do need comparability and disclosure. To that extent terminology and classification concern all accountants. Progress could be made even in the countries where minimum statement classifications are prescribed by law, because minimum rules are not impediments to more extensive classification or disclosure.

The committees on accounting and auditing practices could initially be charged with a fact-finding mission in that they prevail upon the various national associations to supply indications of what the respective national practices are (analogous efforts have been made to good advantage in the field of business taxation). Once the data have been collected, summarization and analysis will be called for. Comparisons are then possible, and majority practices can then be identified. From this it would only be one step further to single or comprehensive general recommendations.

The thoughts expressed in the proposals made so far do not reach beyond the bare surface of active international work on accounting problems. There is no *a priori* reason why over time the scheme of work could not be carried to more elaborate proportions. For instance a committee or study group could be installed to pursue clarifications on theory. Monographs about underlying aspects of theory could be written from a number of national viewpoints. From this the different concepts could be contrasted and evaluated according to specific goal or purpose criteria. As an example, a side-by-side alignment of historical cost accounting and replacement cost accounting may prove helpful in judging the recent accounting developments in the Netherlands from a supranational perspective and bring about a universal

awareness of them. Of course many other "for instances" can be readily envisaged.

Our final proposition calls for the publication of a professional journal. This has no particular ramifications. It might suffice to effect publication bi-annually; a quarterly basis also seems reasonable. Composition of editorial talent should consider a number of different countries. Mainly writings about international accounting problems should be accepted for such a journal. It may also serve as the publication medium for the proceedings and papers of the International Congresses. Further, the work and recommendations of the professional committees discussed above should appear in the proposed journal.

I am well aware of the fact that closer coordination of international accounting work may be just so much wishful thinking. But somewhere a start must be made or the profession will invite increasing criticism on account of narrow national orientations. To reiterate, it appears untenable that different financial statements for readers in different countries are permitted to originate from one and the same business situation. Secondly, the merits of what I have called a "polarization" of accounting development are of questionable nature. The interests of the discipline are best served if duplicate effort can be eliminated and if future advancement is unidirectional. Coordinated progress and lively international exchange do not necessarily imply a straightjacket of uniformity. As long as there are different national economic structures and different national laws, accounting practices will not be uniform nor enjoy the same degree of general acceptance everywhere. But users of accounting information should be able to understand it, regardless of the surrounding circumstances. Accountants, in turn, should be fully aware of the pitfalls they create by fostering merely their own respective national interests.

THE SEVEN INTERNATIONAL CONGRESSES OF ACCOUNTANTS

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IN ANTICIPATION of the Eighth International Congress of Accountants, to be convened in New York in September 1962, it is appropriate to assess the accomplishments of the previous seven Congresses. Those held to date are:

First, in 1904 in St. Louis, sponsored by the Federation of Societies of Public Accountants in the United States. Ninety-one persons were registered as members of the Congress (including foreign representatives from England, Holland, and Canada). CPAs came from sixteen states. Ten papers were delivered.

Second, in 1926 in Amsterdam, sponsored by the Netherlands Institute of Accountants, the Netherlands Union of Accountants, and the Netherlands Organization of Accountants. There were 371 representatives in attendance from Denmark, Germany, Finland, France, Great Britain, India, Ireland, Italy, the Netherlands, Norway, Rumania, Russia, Spain, Sweden, and the United States. Twenty-five papers were given.

Third, in 1929 in New York, sponsored by the American Institute of Accountants, American Society of CPAs, National Association of Cost Accountants, American Association of University Instructors in Accounting, and the State Societies of Certified Public Accountants in the United States. More than 1,600 people were in attendance with delegates coming from accounting societies in Australia, Austria, Canada, Cuba, Czechoslovakia, Germany, Great Britain, Holland, Honduras, Iceland, Italy, Japan, Mexico, Norway, Philippine Islands, Puerto Rico, Rumania, Russia, and Switzerland. Sixty-five papers were read.

Fourth, in 1933 in London, sponsored by The Institute of Chartered Accountants of Scotland, The Institute of Chartered Accountants in England and Wales, The Institute of Chartered Accountants in Ireland, The Society of Incorporated Accountants and

Auditors, London Association of Accountants, and Corporation of Accountants. Forty-nine societies sent 90 delegates, and in addition 79 visitors attended from abroad. Practitioners came from Africa, Australia, Austria, Canada, Czechoslovakia, Denmark, France, Germany, Great Britain, Holland, Italy, Japan, Mexico, New Zealand, Norway, Philippine Islands, Poland, Rumania, Sweden, and the United States. Twelve papers were presented.

Fifth, in 1938 in Berlin. This Congress was held just before World War II and a record of the *Proceedings* is not generally available.

Sixth, in 1952 in London, sponsored by the British bodies which sponsored the Fourth Congress. There were 2,500 representatives of 36 nations in attendance. In total, 103 societies from 35 different countries accepted invitations to the Congress and 490 delegates and visitors attended from abroad. In addition, there were 1,009 members of the sponsoring bodies. Accounting societies represented were those of Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Burma, Canada, Columbia, Denmark, East Africa, Finland, France, Germany, Great Britain, India, Israel, Italy, Japan, Malta, Mexico, Netherlands, New Zealand, Norway, Pakistan, Peru, Philippines, Portugal, Rhodesia, South Africa, Sweden, Switzerland, United States, Uruguay, and Venezuela. Thirty-five papers were read.

Seventh, in Amsterdam in 1957, sponsored by the Netherlands Institute of Accountants and the Association of University Trained Accountants. Some 1,700 accountants came from 40 countries; nearly 3,000 persons of both sexes were in attendance. Representatives of accounting bodies came from Australia, Austria, Belgium, Brazil, Burma, Canada, Ceylon, Denmark, East Africa, Finland, France, Ghana, Germany, Great Britain, India, Israel, Italy, Japan, Luxembourg, Malta, Mexico, Monaco, New Zealand, Norway, Pakistan, Philippines, Rh-

desia, South Africa, Spain, Sweden, Switzerland, Thailand, Trinidad and Tobago, Turkey, United States, and Venezuela. Twenty-nine papers were presented.

A review of Congress papers provides an over-all summary of professional developments and professional education in the countries where public accountancy is well established. It also reveals much of the trend of political life in the world, as some countries have dropped from the company of Free World nations and no longer send representatives of their accounting societies. On the other hand, emerging countries have become increasingly more active in professional circles and are conscious of the necessity of representing their societies at international conferences.

1904 CONGRESS

The plan for the first Accounting Congress ever held in the world must be attributed to George Wilkinson (1860-1932), an Illinois CPA who was born in England but spent his professional life in America. The Federation of Societies of Public Accountants in the United States of America, which sponsored the Congress, had been formed only in 1902.

The 1904 Congress was held on the grounds of the Louisiana Purchase Exposition at St. Louis. A few copies of the *Official Record of Proceedings*, covering sessions from September 26 to 28 remain.¹ Among the honored guests were Col. Francis W. Pixley (1852-1933), immediate Past President of The Institute of Chartered Accountants in England and Wales, who spoke on "Invested Capital." Pixley is well known for his classic, *Auditors, Their Duties and Responsibilities*, published in 1881.

Other guests were James (later Sir James) Martin, Secretary of The Society of Incorporated Accountants and Auditors; John B. Niven, who represented the Society of Accountants in Edinburgh of which he was a member; several members of the

Canadian profession, and E. van Dien, Amsterdam, who represented the Dutch profession.

It is interesting to note that the subscribers to the guarantee fund of \$4,000 included one State Society of CPAs, two accounting firms, and 85 individuals, of whom five were members of The American Association of Public Accountants, eleven of the New York State Society of CPAs, and six of both bodies. Of the total subscribed only \$3,500 was called. Total expenses paid to December 15, 1904 totaled \$3,071.75.

The 1904 Congress was an ambitious event for the American accounting profession. It was held when The American Association of Public Accountants (predecessor body to The American Institute of Certified Public Accountants) had a membership of only 140 scattered over 15 states, of whom 81 held CPA certificates. The New York State Society of CPAs had 100 members, and the State Societies which maintained membership in the Federation had only 200 affiliates. Some doubt had been expressed as to whether the Federation would succeed as an American professional society. It was handicapped by the fact that each State enacted its own CPA laws governing practice within its limits, and by the absence of reciprocity between States.

The *Financial Record* marked the Congress by printing a special edition of speeches.² While it stressed the competence of those in attendance, it pointed out that an imperative need existed for unity of purpose and effort among practitioners and for a uniform standard of professional qualification and practice in every section of the United States. These matters were emphasized by a number of speakers at the Congress who wished to place the Ameri-

¹ *Official Record of Proceedings of the Congress of Accountants, Held at the World's Fair, St. Louis, September 26-28, 1904*, pp. 231.

² *Financial Record*, November 2, 1904.

can profession upon the same level of prestige as that enjoyed by the British accounting societies and their members.

After Joseph E. Sterrett (1870-1934) was chosen President of the Congress, he spoke on the need for a clearer conception of the duties and responsibilities of the CPA. The philosophy incorporated in his remarks applies to modern practice, and a portion of it is quoted below:³

Accounting is a vital element of business, as necessary to its conduct as light is to the eye. Growth of business, both in volume and in diversity of its ramifications, has created a need for scientific accounting methods upon one hand, and intelligent, conscientious oversight and supervision of fiscal operations upon the other. To meet these needs is the studious function of the public accountant. That the public accountant is a sort of detective, whose chief service is to show how a thief tapped the till, is a conception of our work that is altogether inadequate.

It is one of the chief functions of the public accountant so to marshall the accounts that they will set forth the facts essential to the proper management of a given enterprise, and this in a form easily understood and with such promptness that the information is current with the transactions described. . . . The crowning glory of our profession is that it must ever stand for the highest ideals in the life of the individual and for the slow but sure evolution of society into a stage where honor and honesty shall not be mere abstractions.

Papers read in St. Louis bear rereading today, especially by accounting historians and others who wish to assess professional developments before World War I. They included "The Profits of a Corporation," prepared by Arthur (later Sir Arthur) Lowes Dickinson (1859-1935); "The CPA Movement and the Future of the Profession of the Public Accountant in the United States," by George Wilkinson, Secretary of the Congress; "Municipal Accounting," by Harvey S. Chase (1861-1946); "Revenues and Expenses in Municipal Accounting," by Frederick A. Cleveland, Ph.D.; "The Importance of Uniform Practice in Determining the Profits of Public Service Corporations," by Col.

Robert H. Montgomery (1872-1953); "Appropriations in Respect to Municipal Accounting" by Ernest Reckitt (1877-1955); and "The Municipal Balance Sheet," by Henry W. Wilmot (1867-1948). Of the above men, Chase, Cleveland, and Montgomery were born in the United States, Wilmot in Buenos Aires, and the rest in Great Britain.

It is important to point out that Wilkinson argues for reciprocity of the CPA certificate throughout the United States. He felt that the legal designation of CPA should be established before any attempt was made to seek "laws to compel corporations, in which the public are interested as investors, to have their balance sheets audited by legally recognized accountants."⁴

Walter Staub (1881-1945) wrote a prize winning essay (\$50) on the "Mode of Conducting an Audit."⁵ This is one of the earliest authoritative descriptions of the American audit program. On rereading this paper, it would appear that the detection of fraud is overstressed as the main objective of the independent audit. Staub wrote: "From first to last it is the auditor's duty to be on the lookout for fraud. Nine times out of ten, the client who determines upon an audit suspects no one in his employ in the slightest of dishonesty, and yet experience teaches that in nine cases out of ten it is where they are least expected that fraud and dishonesty are discovered." Of course, it must be remembered that accounting records were on a somewhat elementary basis in 1904, and that the role of internal control had not yet been explored.

A Committee was appointed at the Congress to secure the merger of The American Association of Public Accountants and the Federation of Societies of Public Accountants in the United States of

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*

America—with the aim of attaining greater professional solidarity. A plan was finally outlined under which the Association became the continuing organization after amendment of its constitution and by-laws. The Committee was composed of distinguished practitioners, namely, W. Sanders Davies (1862–1909), Chairman, born in Liverpool, a New York CPA; Frank Allen (1838–1909), a New York CPA; Duncan MacInnes (1862–1946) born in Scotland, a New York CPA, all representing the Association; Arthur Lowes Dickinson, Col. Robert H. Montgomery, and George Wilkinson representing the Federation (of these, Dickinson and Wilkinson held Illinois CPA certificates and Montgomery possessed a Pennsylvania CPA certificate); L. H. Conant (1856–1945), a New York CPA; Charles H. Ludland (1866–1934), a New York CPA; and T. P. Ryan (1859–1907), a New York CPA, representing the New York State Society.

In October 1905 the Association and the Federation were merged under a constitution which provided for individual and State Society memberships and with the aim of spreading the knowledge of the CPA's usefulness in the business world.

The New York University School of Commerce, Accounts and Finance—the first institution of higher learning in this country to devote special attention to training the public accountant—was functioning at the time of the 1904 Congress.

1926 CONGRESS

Twenty-two years were to pass before the Second International Congress of Accountants was held in Amsterdam. Much of the time at that meeting was devoted to a consideration of professional ethics. Sir William (later Lord) Plender (1861–1946) summed up this topic in the following terms:⁸

The auditor cannot complain that legal decisions

place too heavy a burden on him. The legal standard of accounting is high, but not too exacting having regard to the professional status which practicing accountants have attained. It is true to say that the reputation enjoyed by the professional accountant does not rest upon his adherence to legal principles, however important; it is mainly by reason of the accountant's regard for his much wider moral duty and responsibility that he enjoys the confidence of the business community and the public generally. The mere observance of legal requirements may develop into a formality and render easy the evasion of responsibility upon technical grounds. Bearing in mind the variety of purposes for which an audited balance sheet may be used the auditor should refrain from taking too narrow a view of his responsibility, and his object should be not merely to shield himself from legal consequences, but to accept as the basis of his duty the more important legal responsibility which the position involves.

After A. P. Richardson (1876–1949), then Secretary of the American Institute of Accountants, wrote *The Ethics of a Profession* in 1931, there was greater appreciation of the necessity of maintaining recognized standards of practice and, even, of elevating them in response to public demand.⁹

The Journal of Accountancy was emphasizing at about the same time that "it is absolutely certain that the sentiment opposed to professional advertising is gaining ground every day, and he would be a hardy and ill-informed prophet who would predict that there would ever be a departure from the standards which have been set."¹⁰ After considering American and British decisions and American common law, Col. Robert H. Montgomery outlined the CPA's legal duties and responsibilities in his *Auditing Theory and Practice*.¹¹ He also addressed the 1926 International Congress on "Legislation for the Profession," in

⁸ "The Accountant's Certificate in Connection with the Accountant's Responsibility," reprinted in *The Accountant*, July 10, 1926, pp. 47–58.

⁹ Published by The Century Co. of New York, Copyright American Institute of Accountants, 1931, pp. 159.

¹⁰ Editorial, *The Journal of Accountancy*, August 1933, p. 86.

¹¹ Published by the Ronald Press Co., New York, 1927. See especially pp. 133–34.

which he stressed that "in our most populous States the CPAs of other States are not recognized."¹⁰

John Thomas Madden (1882-1948), Dean of the New York School of Commerce, Accounts and Finance, spoke on "Education for the Profession."¹¹ After deplored the diversity of State CPA laws, he indicated that the words of "Lisle, Dicksee and Dawson and the publications of Gee & Co. were the principal textbooks used by American colleges and universities up to 1910." These books were gradually replaced by American volumes, including *Modern Accounting* by Henry Rand Hatfield (1866-1945) and Montgomery's *Auditing*. Madden pointed out in his paper that a great weakness in the United States in 1926 arose from "the lack of a proper liaison between the State Examining Boards and the schools on the one hand, and between the practitioners and their professional societies and the schools on the other."

Ernest Evan Spicer of London discussed British education for the profession. After outlining the need for international congresses in subsequent years, he proposed the establishment of an international prize, of similar eminence to the Nobel Prize for literature, for works on accounting subjects. As far as is known, nothing came of this interesting proposal.

One paper, delivered by Sir Albert W. Wyon (1869-1937) on the organization of the offices of large accounting firms deserves study today.¹² This paper antedated the international accounting firms now in operation in many parts of the globe, and outlines the principles and ethical standards of international practice. The problems of foreign languages were explored as well as the necessity of developing "the spirit, traditions and reputation" of the firm, from the founders to the present generation. Surely what Wyon wrote should be incorporated in many modern

training programs which should, ideally, be initiated or concluded by reference to the traditions and personalities of the CPA firm.

1929 CONGRESS

The Third International Congress was held in New York in September 1929. Joseph E. Sterrett and E. van Dien, presidents of the earlier Congresses, served as Honorary Presidents, while Col. Robert H. Montgomery held the role of President of the 1929 sessions. A \$500 prize for an outstanding essay was awarded to Perry Mason. Papers presented exhibited divergent viewpoints on subjects of mutual interest. The head of the British delegation, Sir William Plender, argued for frequent interchanges "of views and personal contacts with our professional friends, from whatever country they may come, . . . as they serve to widen our outlook and sharpen our powers of observation and perception."¹³

One of the most valuable discussions was provided by E. van Dien on "The Development of Public Accounting in Continental Europe." Although much of this material is now outdated, as the paper included extensive references to Czechoslovakia, Poland, and Rumania, now under Soviet control, the sections on Austria, Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Sweden, and Switzerland provide the background to an understanding of recent professional trends in those countries.

Additional papers at the 1929 Congress covered the profession in Australia, Austria, Cuba, England, Germany, the Netherlands, India, Italy, Japan, Switzerland,

¹⁰ See pp. 205-224 of *Proceedings of the 1926 Congress of Accountants*, Amsterdam, 1926.

¹¹ See pp. 571-582 of *Proceedings of the 1926 Congress of Accountants*, Amsterdam, 1926.

¹² See pp. 767-782 of *Proceedings of the 1926 Congress of Accountants*, Amsterdam, 1926.

¹³ Murphy, Mary E., "Lord Plender: A Vignette of an Accountant and His 'Times,'" *Bulletin of the Business Historical Society*, March 1953, p. 19.

and the United States. Much of the discussion was centered on the practical problems of depreciation, but additional papers covered the form and contents of financial statements, consolidated statements, and external influences affecting accounting practice. The Italian papers directed public attention to the efforts of Benito Mussolini to achieve standardization of company procedures.

In the light of the McKesson & Robbins Case, the argument of C. Oliver Wellington (1886-1959) on "The Accountant's Responsibility for the Inventory" deserves special attention. A part of his comments follows:¹⁴

Certainly there has been a decided trend toward a general recognition that non-verification of inventories constitutes a lax point in auditing practice. I believe firmly that were a thorough canvass to be made among American auditors of high standing in the profession, a surprisingly large number would be in favor of exercising full responsibility for inventory verification—not merely accepting it, but demanding it. They are not insurers or guarantors, but they do feel competent to express reliable opinions. . . .

In my opinion, the public accounting profession cannot better itself by disclaiming its responsibility, by confessing its ignorance and incompetency, but professing a false security to itself above a real service to others. If the profession is to continue to grow, it must meet the needs and the demands for improved service. In the case of inventory verification, the growing pains may be rather sharp; but the proper fulfillment of the ideal of professional service can bring only one result.

1933 CONGRESS

The 1933 Congress in London, sponsored by the British accounting societies, was chaired by Lord Plender who urged the acceptance of professional tenets which would enhance the profession in a world already faced with serious international problems. Professor William Annan (1870-1952) of Edinburgh University directed attention in his paper to the opportunities in the field of public accounting. He suggested the propriety of initiating courses in

accounting research for the benefit of commerce and industry, contending that "the science of accounting is now wide and deep enough to command the undivided attention of men with trained minds, minds devoted to the study of particular branches of the subject in the same way as in chemistry and medicine."¹⁵

Many references were made at the 1933 Congress to the unsettled conditions in finance and industry. Attention was directed to the problems of holding company and subsidiary accounting. One speaker, Sir Albert W. Wyon, already mentioned, urged greater publicity for parent and subsidiary companies, stating: "To achieve our full measure of usefulness, we must combine honesty, independence and care in discharging our responsibilities with a broad view of the limits of those responsibilities and a willingness to extend those limits to meet the changing needs of business and of the investing public."¹⁶

At this Congress, as at subsequent meetings, it became the practice to convene firm meetings, especially meetings of international accounting partnerships. Since it was apparent that much needed to be done to achieve world wide auditing standards, Lord Plender urged that it might be advisable to pool knowledge of accounting practices which were carried on in various countries. He stated:¹⁷

It may be said that subjects of international interest have already been dealt with very fully in addresses and books which are available to the diligent seeker. But they are widely scattered and are not accessible to accountants in all countries, and not too readily found even in the country of their origin. What is wanted is to bring together in concise and clear form essential material information concerning the relevant law and ac-

¹⁴ See pp. 734-770 of *Proceedings of the 1929 Congress of Accountants*, New York, 1929.

¹⁵ See pp. 259-279 of *Proceedings of the 1929 Congress of Accountants*, New York, 1929.

¹⁶ See pp. 123-141 of *Proceedings of the 1933 Congress of Accountants*, London, 1933.

¹⁷ See Opening Remarks of Lord Plender before the 1933 Congress of Accountants, London.

countancy practice in each country as affecting matters of common interest to the profession throughout the world and to keep such information revised to date so that it embodies new legislation, recent decisions of the Courts and the latest experience. Volumes so compiled would form a compendium of universal interest and be of great value to practitioners in each country.

Unfortunately, this suggestion was never implemented by either practitioners or researchers. The accounting profession is still devoid of any international survey of accounting and auditing theory and practice.

1938 CONGRESS

Held in Berlin, relations at the 1939 Congress were strained. The sessions occurred in the autumn about the time of the Munich crisis, so both personal and professional matters were conducted on a somewhat unfriendly basis. It appears that few of the four volumes emerging from the 1938 Congress remain.

1952 CONGRESS

The 1952 Congress, convened in London, included about 80 CPAs from the United States. It exercised a constructive influence on international finance and commerce, and stimulated avid discussion and subsequent research on fluctuating price levels in relation to accounts, accounting requirements for issues of capital, the accountant in industry, the accountant in practice and in public service, and the incidence of taxation. The Congress was notable, also, for its attention to educational and other movements in Great Britain, the Netherlands, Germany, France, the United States, Canada, India, Australia, New Zealand, Switzerland, Denmark, and Sweden.

Emphasis in deliberations at the 1952 Congress appears to have been upon the managerial side of accounting to a greater extent than at previous Congresses. One paper given by F.R.M. de Paula (1882-1954) raised a number of interesting ques-

tions concerning the proper development of management accounting. A part of his argument follows:¹⁸

- (a) Does management accounting represent a new and specialized technique within the field of accounting? or
- (b) Is it a specialized technique outside the field of general accounting, but embraced within the field of engineering?
- (c) If management accounting is a specialized technique:
 - (1) From what sources should industry draw the necessary specialists for work within industry?
 - (2) Is there a need for public accountants in general practice, specialized in this new technique, to advise industry in the installation of systems of management accounting?
 - (3) Should there be facilities for providing specialized training for such specialists, required under (1) and (2) above? If so, how should such training be provided?
 - (4) Is it necessary for accountants taking up this technique to have a working knowledge of engineering? If so, how should that knowledge be obtained?
 - (5) Is there a need for full-time research work in the field of management accounting? If so, how and by whom should such research be undertaken and organized?
 - (6) If the need for research as in (5) above were agreed, would it be necessary to obtain the cooperation of engineers and industrialists?

Although there was no specific reference to the emerging field of management services, there are implications for this field in the above quotation and in certain other papers presented at the 1952 Congress. Perhaps de Paula envisaged the events which were about to emerge in management accounting and management services earlier than did some other practitioners.

1957 CONGRESS

The most recent International Congress of Accountants occurred in Amsterdam in

¹⁸ See p. 251 of *Proceedings of the 1952 Congress of Accountants*, London, 1952.

1957. From the papers presented it was clearly evident that the professional accountant had extended his range of competence and experience beyond that of the traditional audit into all ramifications of taxation and business organization. However, it was clear that in some countries the traditional method of training for the profession, through apprenticeship in a practitioner's office, was no longer demanded. Additional university courses had been organized, and a trend toward a university degree was evident.

Emphasis at the 1957 meetings was placed on the auditing function as a distinguishing mark of the accountant, and upon the independence of his examination of every phase of industry and commerce. There was general agreement that this independence must be preserved, and recognition that it rested on the integrity of the practitioner himself. In a period of ever higher taxation and other impediments to business operation, the accountant was seen as someone removed from the pressures of management, yet assisting management in reaching sound decisions in view of legal, financial, and tax trends.

Papers on budgeting and the activities of the internal auditor illustrated once again that accountants had "invaded" industry in large numbers. The development of management accounting, the rise of management services as a field of professional competence, and the growth of the controllership function were all mentioned as challenges to the profession. Carman G. Blough, recently retired as Director of Research of the American Institute of Certified Public Accountants, provided a stimulating paper on the principles of the accountant's profession, concluding with a short discussion of the CPA in a consultative capacity. He wrote:¹⁰

Regardless of how much we expand into the "management service" area we must not lose

sight of the fact that our prestige is based upon our accomplishments as auditors. Our ability to continue to fill the needs of those outside of the management of a business, who rely on financial statements for assurance that the representations of management are fair and reasonable, is the heart of our claim to professional recognition. It is only in that function that we can claim abilities that cannot be found in others. It has seemed clear to me, therefore, that when we talk about "Principles for the Accountant's profession," we must place primary importance upon those principles which govern our activities as independent auditors.

At the 1957 Congress, other papers were delivered by accountants from Sweden, the Netherlands, Germany, Malta, Canada, and Burma. Generally speaking, they revealed extensive research as well as an assessment of how far the profession had gone in reaching its goal of service to business and to society.

1962 CONGRESS

The Eighth International Congress of Accountants will be held in New York in September 1962. Arthur B. Foye will serve as president, and sessions will be centered around the theme: "Auditing and Financial Reporting in the World Economy." Papers will discuss accounting and the world economy in terms of postulates and aims underlying accounting principles, the impact of laws and regulations, fluctuations in the purchasing power of money, and the acceptance of changes in accounting principles and procedures on both a national and an international basis.

In addition, auditing and the Free World economy will be surveyed as to the duties of the internal auditor, the public accountant, and the interrelationships of these two individuals. The question of whether or not wide variations in auditing standards on an international basis affect the flow of private investment capital will be aired. Finally, financial reporting and the

¹⁰ See p. 100 of *Proceedings of the 1957 Congress of Accountants*, Amsterdam, 1957.

world economy will stress the usefulness of financial reports to the various individuals who use them. Standards of disclosure and the nature of outside influences on financial reporting will also be discussed.

It is hoped that five thousand or more people will attend the Eighth Congress. To bring everyone into the general discussion, there will be fifty or more small, informal discussion groups, each limited to about twenty-five participants, with principal speakers at general sessions giving broad treatment to the three major topics just mentioned. Representatives of accounting societies throughout the Free World will undoubtedly attend this Congress. It is interesting to speculate where the Ninth Congress will be—perhaps in a developing country or perhaps in the Antipodes where the profession is already well established.

The Eighth International Congress of Accountants should prove valuable to those who attend its sessions but equally valuable to those who read the volume covering the deliberations. As member of a rapidly growing international business community, accountants now think in international terms, practice in world-wide partnerships, and foster movements which liberalize commerce and trade on an international level. International meetings are held so frequently now that some disparagement is heard of their lasting value. However, with proper sponsorship and dedication to the themes announced, it is believed that the Eighth International Congress of Accountants will prove a useful descendant of the First, held in St. Louis in 1904, and indeed of the others held in Holland, London, and New York in more recent years.

ACCOUNTANCY, SYSTEMATIZED LEARNING, AND ECONOMICS

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IT is the aim of this paper first to indicate very broadly the principal areas of systematized learning, and secondly to compare and contrast accountancy and economics within the framework of these areas. Methodology and content are two integrated aspects of any area of systematized learning, so it should be made clear at the outset that sometimes dichotomizing accountancy and economic studies into either their content or methodology is merely an analytical device.

AREAS OF LEARNING

If we limit ourselves to five principal areas of learning, they may be designated and arranged as in Figure 1.¹

Without proper qualification at this stage, working definitions of accountancy and economics can be stated in terms of their content only:

1. Economics is the study of the behavior of persons and groups in social and market situations that are subject to pecuniary measure.
2. Accountancy is the study of efficient alternative means of quantifying economic variables, as well as logically manipulating propositions about social and market situations that are subject to pecuniary measure.

Economics is thus mainly concerned with the study of behavior, while accountancy is concerned with the study of the quantification and analysis of the resultants of behavior.²

Philosophy. If we begin with the first area in Figure 1, philosophy, it is impor-

tant to note that both accountancy and economic studies derive their basic meaning from learning in this area. Metaphysics may seem a far cry from either accountancy or economic studies, yet the basic postulates of science, including the postulate of the orderliness of natural and social phenomena, stem from metaphysical analysis.³ Epistemology embraces studies of the nature and criteria of human knowledge, including the role of definitions, postulates, as well as inductive and deductive analyses. Epistemological prolegomena are characteristic of first chapters in most texts and reference books. More pages in learned journals are seared by epistemological castigation than by any other means. Both accountancy and economics have some stake in the development of metaphysics, but much more stake in the development of epistemology. Taken together, then, these areas are the very foundation of systematized learning.⁴

¹ Adapted from D. P. Flanders, *Science and Social Science*, The Stipes Publishing Co., Champaign, Illinois, 1959.

² This sort of definition is at variance with the textbook definition of accounting, but might satisfy some of the criticisms of Raymond C. Dein, "A Glance Backward at Research in Accounting," *THE ACCOUNTING REVIEW*, Jan., 1961, p. 5. It might not satisfy Herman W. Bevis, "Riding Herd on Accounting Standards," *THE ACCOUNTING REVIEW*, Jan. 1961, p. 9.

³ The arguments to make science independent of metaphysics are well presented by Herbert Feigl, "Some Major Issues in the Philosophy of Science and Logical Empiricism," *The Foundations of Science and the Concepts of Psychology and Psychoanalysis*, being Vol. I in *The Minnesota Studies of the Philosophy of Science*, edited by Herbert Feigl and Michael Scriven, University of Minnesota Press, Minneapolis, 1956.

⁴ High water marks of years gone by in the application of epistemology to economics, have been made by J. S. Mill, J. N. Keynes, L. Robbins, and Frank Knight. More recent are the writings of Milton Friedman,

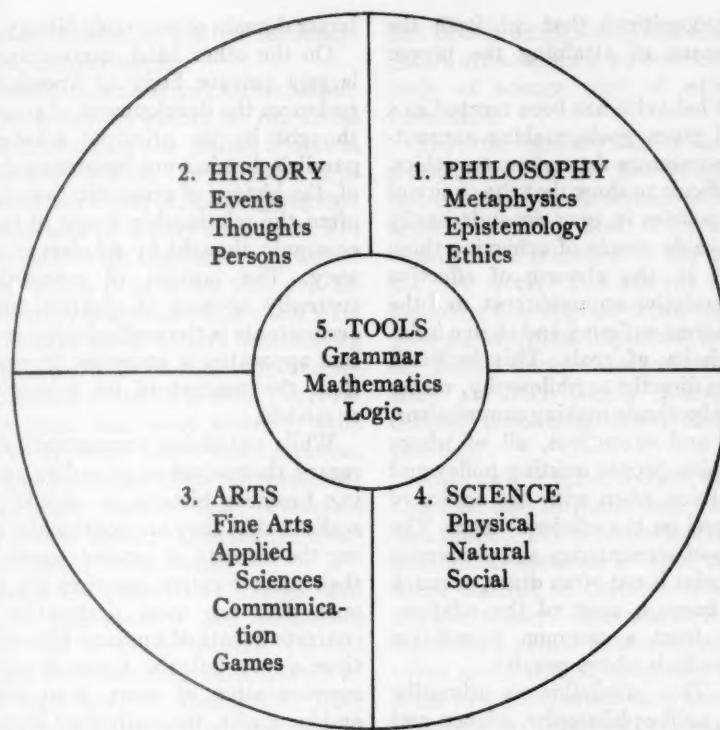


FIGURE 1

Turning now to the third principal area of philosophy, that of ethics, we note that accountancy and economics both deal with the "shoulds" and "oughts" of human behavior. In the area of accountancy this behavior is most often that of the practicing accountant. On the other hand, the problem of ethical behavior in economics almost always involves the behavior of others, namely the behavior of the makers of economic policy. The subject matter of ethics itself is created by the development of propositions that state the proper moral conduct. This subject matter of ethics is contained in normative propositions that are based on certain religious and philosophic postulates. The empirical search for what a given society regards as proper moral conduct is better classified as a

branch of sociology, rather than philosophy, even though such study is called ethics.

Whatever the origins of these propositions setting forth the proper moral conduct, it is the application of such propositions, rather than their creation, that is the usual province of accountancy and economics. The application of the proper standards of conduct leads to accepting goals, and then analyzing the means for reaching these goals. In the case of accountancy this analysis culminates in a code of professional ethics, while in economics it

Andreas G. Papandreou, and Tjalling C. Koopmans. In accountancy the high water marks would include the writings of A. C. Littleton and W. A. Paton. The recent widespread interest in the methodology of accountancy will surely add to this list.

leads to propositions that set forth the efficient means of attaining the proper goals.⁵

Thus far behavior has been treated as a function of given goals, making accountancy and economics dependent on ethics. It is not difficult to show that the choice of goals and policies in turn depends partly on the available means of achieving these ends. That is, the absence of effective means, the relative economic cost, and the extent of human suffering and shame influence the choice of goals. This feedback seldom goes directly to philosophy, rather it goes to judges, rate making commissions, legislators, and executives, all of whom help determine proper existing policy and preferred ethics, often with the advice of expert counsel on the efficient means. The relationship of accountancy and economics up to this point is not often direct or much remarked, because most of the relationship stems from a common foundation which shows little above ground.

History. This discipline is primarily descriptive, unlike philosophy, science, and some of the arts, which are mostly analytical. History either keeps the concrete cases in view or combines concrete cases in a representative way. Good historians nevertheless are continually engaged in analysis, by applying generalizations to explain related concrete cases. When scholars infer generalizations from concrete cases, they are engaged in developing theory, not in presenting history. As can be noted from Figure 1, there are histories of events, thoughts, and persons. The overwhelming bulk of economic and accounting history is of economic events, and only a small portion of economic history is quantified, mainly on the level of the firm, though increasingly in recent years for larger entities such as national economies. The collection, classification, and presentation of accounting data form a particular category of business history that is within the

larger domain of economic history.

On the other hand, accountancy has a largely private body of knowledge that embraces the development of accountancy thought by its principal scholars. This parallels, but has not become a subdivision of, the history of economic thought. More often the relationship is one of the use of economic thought by scholars in accountancy. The portion of economics that currently appears of greatest interest to accountants is the methodology or conceptual apparatus of economic theory, rather than the content of its principle, laws, or models.

While practicing accountants ought to regard themselves as recording and creating business history, it should also be realized that they are continually destroying the identity of concrete cases. In fact their most creative practices are the very ones that are most destructive of the concrete events of business history. Every time a net balance figure is struck, as representative of more than one debit and/or credit, the individual events have been submerged from view. The single figure for accounts receivable, to say nothing of all assets, is a tremendous abstraction about concrete events for even a small business. This same process is observable in statistical analysis, where concrete events are submerged, for example, in class intervals, and in single

⁵ It is possible to conceive of accountancy as a normative rather than a positive discipline. This is done in Arthur Andersen & Company, *The Postulate of Accounting: What It Is, How It Is Determined, How It Should Be Used*, September, 1960. It is stated, "Thus, the one basic accounting postulate underlying accounting principles may be stated as fairness. . . ." p. 31. The next issue is then whether accountants should develop the ethical content of fairness or adopt such content from contemporary society. The latter course is recommended in the Andersen monograph, with a suggestion of the importance of the sociology of what people believe is fair (p. 15), but chief reliance on the jurisprudence of what constituted authority states is fair (p. 10). While imperfect, an analogy would be to restrict economics to Welfare Economics. Fairness or justice would seem more fruitfully taken either as a restraint, or as one of several competing goals.

measures of correlation, central tendency, dispersion, and skewness.

An example of a most awesome abstraction about economic events is: the Gross National Product for the United States in 1960 was \$500 billion. To be sure, it is aggregated from a host of lesser aggregates, and is expressed in dollars and cents. Yet it is more akin to the imprecise abstraction that 1960 was a prosperous year for us, than it is to the statement that there were \$488 million in silver dollars outstanding on November 30, 1960. Similarly the income statement of the U. S. Steel Corporation is a great deal more abstract, even though it is very tidy with columns, dollars, and footnotes, than the statement from economic history that President Jackson vetoed the act renewing the charter of the United States Bank.

In general the histories of thought and persons in accountancy and economics have followed separate courses. On the other hand the accounting data, usually at a fairly high level of abstraction, have almost always become part of the empirical data, or history, which are utilized in economic analysis. At the same time, it would be a mistake to confuse the presence of a dollar sign with the absence of abstractness.

Arts. Returning to Figure 1, the arts are usually divided between the fine arts such as literature, sculpture, painting, music, and the dance, and the applied sciences such as the several areas of engineering, agronomy, animal husbandry, medicine, psychiatry, marketing, and management. Fine arts presume creativeness by the giver and appreciation by the receiver. While the process of creating fine arts has economic and accounting aspects, and the substance of the arts reflects as well as influences the material culture, nevertheless the links to economics and accountancy are rather tenuous. Games and communication have a somewhat closer

link to economics and accountancy; in fact games are acquiring an increasing parent-body of science part of which lies in economics.

The term "applied science" is sometimes a misnomer, for the flow of knowledge is not necessarily from science to its practical application. This flow of knowledge may equally well originate in the practices of the real world. The knowns of the arts, including the applied areas, are stated in *precepts*, the most important test of which is, "Does it work?" The knowns of accountancy are still largely preceptual, and derived from enlightened observation of practice.⁶

Until two or three decades ago the same could be said of marketing, management, and finance. Yet in all these areas there is a substantial ferment to give the unstructured content of precepts a solid framework of theory.⁷ This search for a suitable framework points to economics, as well as other social and physical sciences. For the areas of applied economics, there are three major items of interest in economic theory: 1. the methods of analysis, 2. the postulates of economic theory, and 3. the content or substance of economics, which is embodied in its principles or laws.

This ferment and search has implications in other directions than from Sector 3, accountancy precepts, to Sector 4, economic theory, speaking in terms of Figure 1 again. Accountants are turning to Sector 1, philosophy, and relating epistemology directly to accountancy.⁸

⁶ Raymond C. Dein, "A Glance Backward at Research in Accounting," *THE ACCOUNTING REVIEW*, Jan., 1961, p. 5.

⁷ Accounting does have a framework within its system, and is therefore partially unlike marketing, management, and finance. This framework is largely a tool (Sector 5, Figure 1) and includes bookkeeping. Historically this area owes little to economic theory (Sector 4) and a great deal to mathematics (Sector 5).

⁸ For example, the careful appraisal by Carl T. Devine, "Research Methodology and Accounting Theory Formation," *THE ACCOUNTING REVIEW*, July, 1960, pp. 387-399; Brother LaSalle, "Basic Research

A formal methodology is a sign of increasing maturity in any discipline. The precepts of Sector 3 are the rules by which business activity is quantified as economic history in Sector 2. It should be expected that the closer the accountancy of Sector 3 draws to the economic theory of Sector 4, the more likely the accounting data of Sector 2 will have increased feed back first to economic theory, Sector 4, secondly to applied economies such as finance and management, Sector 3, and thirdly to economic policy, Sector 1.

Science. As was pointed out at the beginning of this paper, any area of systematized learning involves both methodology and content. No area of learning has a more formalized methodology than science. The deductive aspects of science long ago reached a level of some elegance at the hands of Aristotle, while the inductive aspects of science made their greatest initial gains at the hands of Francis Bacon and René Descartes. Modern science regards deduction and induction as complementary processes of analysis.

Science is also a certain body of knowledge, the knowns of science. The knowns are expressed as *principles* or *laws*, and in economics there are three main groups of principles. One set deals with the problem of the allocation of scarce resources among alternative uses, or the problem of efficiency in micro-economic theory.⁹ The second set of principles centers about the level of employment of resources or the problem of employment in macroeconomic analysis.¹⁰ The third set of principles deals with the problems of economic growth and the long run socio-economic processes of growth. Accountancy continues to be most intimately related to microeconomic theory; in fact there has been a revival of such interest as decision theory and operations research give new points of focus.

Tools. Figure 1 mentions three principal tools of systematized learning: grammar,

mathematics, and logic. All three tools are used by accountants and economists in their professional role. One of the current trends in all the social studies is the increasing use of mathematics, some of it being symbolic or logico-mathematical expression of principles, while other uses involve numerical values or operational level mathematics. In their role in theory, algebraic symbols and diagrammatic statements may be reinforcements of simple literary statements of principles. On the other hand, the entirety of large complex systems of interdependent variables are barely feasible using purely literary statements. Such for example is a general equilibrium Walrasian model in micro-analysis or an extended Keynesian model in macroanalysis. Similarly, operational mathematical models may be so complicated as to leave the literary expression of interdependent equations beyond human grasp.

There are no purely literary solutions of a linear programming problem, many of the other types of problems in operations research, and large input-output models. It is to be hoped, and expected, that social science will follow the general methodology of physics, sometimes called a "rational" science, because ideas are created by mathematical manipulation. An interesting parallel exists between Albert Einstein's general theory of energy and John von Neumann's theory of games.

in Accounting," *THE ACCOUNTING REVIEW*, October, 1959, pp. 603-608; R. J. Chambers, "The Conditions of Research in Accounting," *The Journal of Accountancy*, Dec., 1960, pp. 33-39.

⁹ The application of this area of economic theory to accountancy is often dichotomized in terms of financial *versus* management accounting, for example, Lyle E. Jacobsen, "Management Accounting: Content and Approach," *THE ACCOUNTING REVIEW*, Jan., 1960, pp. 64-69.

¹⁰ An overall view of microeconomic and macroeconomic analyses and their relation to accountancy is taken by Maurice Moonitz and Carl L. Nelson, "Recent Developments in Accounting Theory," *THE ACCOUNTING REVIEW*, 1960, pp. 206-219.

Both mathematicians ran out of relevant mathematics to complete their systems, notwithstanding the fact that von Neumann was forging new mathematics *ad hoc* as he went along.

The use of mathematics as a tool can simplify the transmission of knowledge between science and applied science, Sectors 3 and 4 of Figure 1. Some might argue that accountancy is itself a tool. If so, then it is a particular kind of simple algebra deriving largely from two axioms:¹¹

1. Assets—Liabilities—Owner's Equity
=0
2. Total Revenues—Total Expenses—
Net Profits=0

Much of what is called bookkeeping can be thought of as a tool. Perhaps some parallel exists between statistics and accountancy. Mathematical statistics may be akin to *accounting*, and both tool subjects, while business statistics and *accountancy* are applied areas that are broadly grounded in mathematics, and economic theory.

These comments by no means exhaust the relationships of accountancy and economic studies in terms of the five principal sectors of Figure 1. If each discipline, accountancy and economics, has a place in four or five sectors of Figure 1, then there are from 4×4 to 5×5 relationships to examine. We shall leave the rest of these possible comparisons now, and confine our attention to Sectors 3 and 4.

METHODOLOGICAL SIMILARITIES AND DIFFERENCES BETWEEN ECONOMIC THEORY AND ACCOUNTANCY

If the knowns of any science are contained in the principles or laws of that science, then there should be standards for accepting or rejecting a principle.¹² These standards are methodological rather than content requirements. While our analysis will be confined in the next section to the principles of economics, the methodo-

logical requirements that will be introduced are not limited to this science.

Principles of Economics. Any standard can be conceived in terms so that very few if any, rejections will be occasioned. Such a standard, whether in automobile assembly or systematized learning, is a minimum requirement. On the other hand, a standard may be on a higher level, such that almost no items or instances will pass muster. The following list of five major requirements of a principle contains some easily satisfied requirements. Nevertheless, if the list is taken as a whole, it is very nearly an ideal list, for relatively few principles in science will meet all the following requirements. A principle is:

1. An abstract generalization.
2. Expressible as a functional relationship of two or more variables, preferably variables capable of being quantified.
3. Able to meet a test of logical consistency.
4. Able to meet a test of empirical correspondence.
5. Expressible as a causal relationship.

Abstract Generalization. Let us take these requirements in order, as applied to the general area of economic theory. The first requirement is indispensable. Principles apply to many instances and are thus general rather than specific. The instances are also treated in terms that abstract from the possible concrete enumerations of their characteristics. Ideas, events, and things should be neither left without handles by over-abstraction, nor left with

¹¹ Axiomatic analysis may also be regarded as a foundation, a kind of pre-accountancy discipline of accounting variables, for example, Richard Mattessich, "Toward a General and Axiomatic Foundation of Accountancy with an Introduction to the Matrix Formulation of Accounting Systems," *Accounting Research*, October, 1957, pp. 328-355.

¹² Sometimes a *law* is distinguished from a *principle* on the basis of a law having stood the test of more time and trials than a principle. For our purposes, differences between a law and a principle are not distinguished.

excess handles by over-identification.¹³ "Both fixed and variable costs must be covered in the long run by the firm," is a generalization about all firms, and contains at least two important abstractions, the "long run" and "fixed and variable costs."

Functional Relationship. Secondly, principles of economics are necessarily functional relationships, and at least two variables are involved, such as price and quantity. A functional relationship between two variables x and y implies that given the value of one, we can determine the value of the other.¹⁴

Thus the Law of Demand is a functional relationship: the amount (dependent variable) that buyers are willing to take varies inversely with the price (independent variable). Stated in algebraic shorthand we would have:

$$Q_D = f\left(\frac{1}{p}\right) \quad (1)$$

This sort of relationship is usually termed a "behavior" relationship or equation. The behavior relationship is the heart of any group of relationships that theorists are likely to call a model. Other types of relationships or equations include definitions, such as making the quantity demanded equal to the sum of the quantities demanded by domestic and foreign buyers:

$$Q_D = Q_{D_1} + Q_{D_2} \quad (2)$$

This is a functional relationship. It might also just barely be a principle, provided one is willing to agree that simple classification entitles an area of learning to be called a science. Requirements three, four, and five deny this. Somewhere between straightforward definition and a behavior equation, lie the equilibrium condition, and the restraint. The equilibrium condition that marginal revenue equals marginal cost is familiar from elementary textbooks:

$$MR = MC \quad (3)$$

All these relationships are capable of rough quantification as we move from just any good to a specific good such as wheat or haircuts for specified times and places.

Logical Consistency. The third test of a principle is that of logical consistency. In the light of the assumptions and definitions that are set forth, the test is one of reaching the proper conclusion, taking as given the rules of logic. Definitions are not subject to a test of logical consistency, but are givens. Most of the principles of economics have been derived first by the deductive process of applying rules of logic to postulated and defined relationships. Thus if we postulate the physical Law of Diminishing Returns, the goal of profits, and certain other "rational" behavior of business, we can deduce the Law of Supply: the quantity sellers are willing to offer varies directly with the price. Note well, however, that the test of logical consistency is answered by True or False, but only True or False in relation to certain postulates and definitions.

Empirical Correspondence. The fourth requirement, empirical correspondence, is never satisfied in terms of True or False, but rather in terms of the probability with which the relationship stated in the principle, can be expected to prevail in the real world. If we seek affirming, disaffirming, and modifying empirical evidence about some tentative hypothesis, we may thus develop a principle by inductive

¹³ R. J. Chambers, *op. cit.*, states, "The degree of usefulness of a concept depends on the degree of completeness with which it denotes characteristics . . .," and "No description should be considered adequate unless it exhaustively denotes the characteristics of observed phenomena." pp. 33, 37. Taken at their face value, these requirements would make communication scarcely bearable, and theory hardly useable.

¹⁴ Stated in logico-algebraic form, $f(x, y) = 0$ is read "x and y are functionally related." Any implicit function such as just stated, suggests the possibility of two explicit functions: $x = f(y)$ and $y = f(x)$. The first explicit function is read "x is a function of y." Here y is the independent variable and x is the dependent variable.

analysis. If the initial development of a principle is by inductive analysis the principle would then stand in need of the test of logical consistency. The quantity theory of money, "the purchasing power of money varies inversely with the quantity of money," is an historical illustration of the inductive-deductive development of an economic principle. Most principles of economics, from the Classical School onward, have followed the deductive-inductive pattern. The controversy over whether the principle of $MC=MR$ is usually a guiding rule for businessmen illustrates the deductive-inductive development of principles.¹⁵

Deductive and inductive analysis may be substitute methods when first developing a principle, but taken together these methods are complementary processes. As a minimum standard, a principle must satisfy either the test of consistency or empirical correspondence. Usefulness and elegance of a principle depend on both tests being satisfied. If one subscribes to pragmatism, empirical correspondence is primary. If we define theory as a set of integrated principles, theory is inconceivable without deductive analysis.

Causality. The fifth requirement, that a principle state a causal relationship, is a stern test indeed. Causality is linked to the second requirement of a functional relationship. The reasoning is that where $x=f(y)$, x takes the values it does because of the values taken by y , or more formally y is the antecedent and x the consequent. The term "behavior" equation tends to avoid the dispute over causality, but still it has some implication of cause and effect. Judgments that are made about "spurious" correlation are partly judgments about causality. Lack of logical consistency is evidence of lack of identification of causality, but the presence of logical consistency is merely necessary but not sufficient evidence of causality. The causality

in which science is most interested is that from the real world. As long as we must deal with probabilities, we must admit of exceptions. Exceptions, even neatly quantified exceptions, are not comfortable companions of validity concepts which were historically derived largely in the context of deductive analysis. Deductive analysis yields answers of either "true" or "false," but not "maybe." Large elements of personal judgment enter the test of causality when "maybe" is part of the functional relationship. It is not just a question of the degree of probability, it is also a question of the appropriate technique to measure the degree of empirical correspondence. In spite of these difficulties, the test of causality is a desirable goal which we must recognize if we are interested in the "why" as well as the "how" of economic behavior.

It is possible to avoid probing for causality, or justifying behavior equations, if we postulate as givens all behavior relationships. Thus they may become axioms of the theoretical system. Axiomatic behavior equations place them on the same level as "Parallel lines never meet" in plane geometry. This has the merit of making directly available mathematics and symbolic logic with their ease of manipulation and elegant superstructure. It is not altogether easy to forget that these advantages are gained by sweeping the bothersome matter of causality under the academic rug.

Accountancy. Thus far we have indicated the possible areas of relationship between accountancy and economic studies, expressed in terms of the *content*, among the four or five principal areas of Figure 1. Secondly, we have set up the requirements

¹⁵ The Lester-Machlup exchange and the Hall and Hitch findings are milestones in this controversy. R. A. Lester, "Shortcomings of Marginal Analysis for Wage-Employment Problems," *American Economic Review*, March, 1946, pp. 63-82; Fritz Machlup, "Marginal Analysis and Empirical Research," *American Economic Review*, Sept., 1946; R. L. Hall and C. J. Hitch, "Price Theory and Business Behavior," *Oxford Economic Papers*, No. 2, 1939.

of a principle, and applied these standards to one area of economic studies, that of economic theory. The next step is to draw out the *methodological* relationships of accountancy and economic theory, by analyzing some important similarities and differences between those two disciplines. Let us apply to accountancy the five methodological requirements that are enumerated on page 569 above.

Abstract Generalization. The central propositions of accountancy are abstract generalizations. Even simple classification rules, such as "Goods in process at the end of the year are a part of the closing inventory," are abstract generalizations. The usual end products that come from the process of accounting, such as specific balance sheets and income statements, are hardly generalizations, although they are highly abstract when compared to single items in books of original entry.

Functional Relationship. The requirement of a functional relationship of two or more variables, can be broken into two parts. Are there at least two variables in propositions from accountancy? The only real issue arises in accountancy classification rules where there are larger categories and their subdivisions. Going back to the inventories just mentioned above, every sub-category of inventory could be stated in the same form: ". . . at the end of the year is a part of the closing inventory." An alternative is, "Closing inventory consists of (is a function of) raw materials and supplies, goods in process, and finished goods, on hand at the end of the year." It is easy to construe these propositions as embracing two or more variables, for a category is never broken into less than two parts.

The next question is whether the propositions of accountancy are functional relationships. Before we proceed to answer this, we can generalize about classification propositions. Classification rules are neces-

sary in all sciences, can be termed functional relationships, usually follow from a definition, cannot be regarded as causal relationships, and are not subject to empirical verification.

There appears to this writer no more important methodological issue in accountancy, than the issue of the nature of its central propositions. Let us begin with two of the central propositions of accounting. These are:

$$\text{Assets} - \text{Liabilities} - \text{Owner's Equity} = 0 \quad (4)$$

$$\text{Total Revenues} - \text{Total Expenses} - \text{Net Profits} = 0 \quad (5)$$

$$TR - TE - P = 0 \quad (5)$$

Returning to Figure 1, if accountancy is regarded as a tool, then propositions (4) and (5) above, could be two central axioms. By successive definitions and very simple algebraic manipulations, it is possible to elaborate from (4) and (5) a set of propositions to cover most of the process now known as accounting. If this is how accountancy is conceived, then (4) above should be restated as a definition of owners' equity, $OE = A - L$, and (5) as a definition of net profit, $P = TR - TE$.¹⁶

On the other hand, if accountancy is conceived as an art, we have two alternatives. The first assumes that the art of accountancy is preceptual, capable of being inferred from best practice.¹⁷ Propositions (4) and (5) are capable of being elaborated into further rules, or the related rules may be generalized from practice. When thought of in this way, (4) and (5) are rules for classifying balance sheet items (4) and income statement items (5). They are also rules for double entry when stated:

¹⁶ If the time period is anything but very short, absolute values for profits need supplementing by ratios that measure the rates of return.

¹⁷ This is Sector 3 in Figure 1, and is discussed above, p. 567.

$A = L + OE$, and $TR = TE + P$. As was noted above, the principal requirement of a precept is "Does it work?" This is a much simpler test than requirements three, four, and five of a principle.

The second alternative, if accountancy is conceived as an art, is to treat it as an applied science rather than a preceptual art. If accountancy is an applied science, Sector 3 of Figure 1, then the underlying theory is found in Sector 4. In this case it is economic theory and other sciences. How would the propositions (4) and (5) above be treated if accountancy were an applied science? First of all they would begin their existence as functional relationships in economic theory. Further than this, they would initially be behavior relationships or equations, or derivable from such relationships. Stated implicitly, $f(TR, TE, P) = 0$, revenues, expenses, and net profits are functionally related, but more important, $P = f(TR, TE)$ or $P = f[(Q_D, \text{Price}), (Q_S, \text{Expense})]$. The last two functions state that profits depend on total revenues and total expenses. If causality is introduced, profits are what they are because of the values assumed by revenues and expenses. Total revenue in turn is a function of quantity demanded and price, while total expense is a function of quantity supplied and unit expense.

We can be more specific and say that net profits during period t are a linear function of total revenues and total expenses, matched for the same period. Stated as an equation

$$P_t = TR_t - TE_t \quad (6)$$

Borrowing again from economic theory, if it is assumed (or observed) that firms try to maximize net profits, proposition (6) is capable of giving up more information by slight algebraic manipulation. It is true, subject to certain qualifications, that the maximum profit will be at a position where the first derivative of (6) is set equal to

zero. Ignoring the t 's, since they are for matched periods, and denoting output by x :

$$\frac{dP}{dx} = \frac{dTR}{dx} - \frac{dTE}{dx} = 0$$

but by definition

$$\frac{dTR}{dx} = MR_x \quad \text{and} \quad \frac{dTE}{dx} = ME_x$$

∴ where $MR - ME = 0$

or $MR = ME$

P is a maximum

This (7) is the principle, from economics, that may be conceived as the fundation of the applied science of variable or direct costing.¹⁸ Full cost requires that total revenue must either be equal to or greater than total expense. That is, $TR \geq TE$ is a restraint to avoid losses. We could demonstrate an analogous set of relationships from proposition (4) above. Furthermore, we get a different model if we release or modify the assumption of maximizing profits as the goal of private enterprise. Every model can be elaborated by adding economic restraints such as covering certain kinds of costs, institutional restraints such as allowable depreciation, and prudent restraints such as not faring too well. In general, accountancy today is long on quantifiable definitional relationships, but very short on behavior, equilibrium, and restraint relationships. There are surely functional relationships, but they are largely on the most mechanical level.

Logical Consistency. The third requirement of a principle is that it meet the test of logical consistency. Preceptual propositions that have not progressed beyond the

¹⁸ The content of the marginal values varies with the production period. In the very short run little is variable, but in the long run nearly all expenses are variable. Compare C. T. Horngren and G. H. Sorter, "Direct" Costing for External Reporting," *THE ACCOUNTING REVIEW*, Jan., 1961, pp. 84-93.

stage of a rule-of-thumb have little formal consistency or elegance. There are relatively few logically precise systems of related accounting propositions. One exception to this statement is the experimentation with an axiomatic approach.¹⁹ This really relates Sectors 3 and 5, Figure 1, and largely by-passes the behavior equations of economic theory, Sector 4. A second type of exception to the lack of logical precision is found in A.C. Littleton's work, for example his 1950 model.²⁰ This is a construction of best practice within a logical framework. It is noteworthy that the *raison d'être* is a container fashioned to receive an existing body of knowledge, practical accounting. This is in effect a foundation inferred from a practical art. The opposite process, starting with a theoretical framework of principles and then going to a set of precepts, characterizes most of the relationships between economic theory and applied economics.²¹

The disadvantage of the latter process is that theoretical models are not easy to translate into working precepts. An advantage, however, is that theoretical models lend themselves very well to logical manipulation. They are therefore much more versatile in answering questions about changes that *might* be made, their direct consequences, and later repercussions. There is some analogy between the present state of accountancy and Galilean physics, for both were arrived at by largely inductive analysis. Later Newtonian physics permitted the deduction of Galilean propositions. There is no exact parallel here as yet, but it seems to this writer that the methodological ferment in accountancy reflects the search for a broad gauge "Newtonian" theory of accountancy.²² This search reflects a need which is in part supplied by the method and content of economic theory.

Only very infrequently do the propositions of accountancy cross the grey bound-

ary from Sectors 3 to Sector 4 in Figure 1. There is some significance in the absence of behavior equations and the relative lack of rigorous general theoretical systems in accountancy. At the same time there is also some relation between the predominance of definitional functional relationships and the high empirical content of accountancy.

Empirical Correspondence. This brings us to the fourth requirement of a principle, empirical correspondence. The "knowns" of accountancy, exhibit a very high degree of empirical correspondence to the real world. This is to be expected when the generalizations are arrived at by consensus of best practice. This is not unusual in the early stages of the development of theory in any discipline. Mercantilism, for example, is a body of quasi-theory, developed largely by those engaged in trade. Sir Josiah Child helped develop the theory, but one would never mistake the viewpoint of the Governor of the East India Company.²³

¹⁹ For example Richard Mattessich, "Toward a General and Axiomatic Foundation of Accountancy with an Introduction to the Matrix Formulation of Accounting Systems," *Accounting Research*, October, 1957, pp. 328-355. There may be a tendency here to mistake the shadow for the substance. To devise a broader nomenclature is a useful task, but the problem may not be to work from existing accountancy to an axiomatic foundation for it. On the other hand, it is hopeful that more than one approach is being investigated.

²⁰ "Inductive Reasoning in Accounting," *The New York Certified Public Accountant*, August and November, 1950.

²¹ It is surprising that Myron J. Gordon should conclude that "... accounting theory is largely deductive in nature," p. 607 of his "Measurement of Income and Wealth," *THE ACCOUNTING REVIEW*, Oct., 1960. His conclusion that there is little room for empirical research on accountancy principles is consistent with inductively arrived at principles, but not deductively developed principles. This is small reflection, however, on the excellent article.

²² But this kind of framework goes considerably beyond the inductively developed body of knowledge. It may contain some relationships that are not "practical," at least not yet. It is not clear whether this kind of model is acceptable to accountants; see for example, Raymond C. Dein, "A Glance Backward at Research in Accounting," *THE ACCOUNTING REVIEW*, Jan., 1961, pp. 2-3.

²³ For example, his *Brief Observations Concerning Trade and the Interest of Money*, 1668.

Returning to *testing* for empirical correspondence, it is really not a question in present accountancy of affirming or disaffirming propositions by appeal to the real world. Most of the existing propositions originated from accounting practice and correspondence was automatically incorporated.²⁴

Causality. The fifth requirement of a principle is that it expresses a causal relationship. Causal relationships are possibly embodied in behavior relationships or equations, but never are they explicit on the mechanical level of definitional equations and axiomatic systems. Causality was noted to be a difficult requirement for the principles of economics.²⁵ It is doubly so for accountancy, and can hardly help but remain so until accountancy deals with behavior equations.

CONCLUSIONS

Accountancy and economic studies have 4×4 to 5×5 possible relationships in terms of Figure 1. The most important relationships for the mutual development of both disciplines are those of accountancy-economic theory and accountancy-applied economics, particularly private finance. The accountancy-economic theory relationships have been stressed in this article. These are basically complementary relationships, for the conclusion seems inescapable that in general economic theory is a science and accountancy is an art. Accountancy is primarily a preceptual art deriving quite directly from best practice, but also growing in the direction of an applied science. Accountancy is a discipline in search of a theoretical framework.

When accountancy remains the handmaiden of practitioners, it gains in workability, but it suffers in leadership and creativeness. Accountancy surely is not confined to a horizon of what practitioners are doing, yet it seems relatively confined, compared to finance, for example. Account-

ants, particularly academic accountants, must be free, some of the time to let their imaginations dwell on what might be done. Secondly, they should be able to borrow from existing theory in economics and the other related social sciences. Those two steps are mainly in the direction of content change.²⁶

There is also the possibility of methodological change. From our analysis of methodology in building and testing principles and theory, by the admittedly mechanical device of the five requirements of a principle, it should be apparent that certain types of *content* depend on particular scientific *methods*. The greatest methodological deficiency in accountancy is the comparative lack of deductive analysis, particularly comprehensive behavioral systems that furnish a link to economic theory and other social sciences. Deductive models with postulates and definitions lead either to axiomatic models or to principles that include behavior equations. Behavior

²⁴ An interesting stand on middle ground that cuts into both economic theory and accountancy is John H. Meyers, "The Critical Event and Recognition of Net Profit," *THE ACCOUNTING REVIEW*, Oct., 1959, pp. 528-532. The analysis seeks a general proposition that "is compatible with economic theory and at the same time coordinates most current accounting practice." Weldon Powell in "Report on the Accounting Research Activities of the American Institute of Certified Public Accountants," *THE ACCOUNTING REVIEW*, Jan., 1961, p. 29, argues, "Theory needs to be tested in the light of experience and common sense, just as practice needs to be considered in the light of logic and reason." This is quite proper in a general way, but applied to the propositions of accountancy it may possibly be in error. If by "theory" is meant the excellent theoretical structures of A. C. Littleton and W. A. Paton, it makes little sense to "test" this kind of theory for its correspondence to the real world. Their theory was tailored to explain and integrate precepts of best practice, therefore testing for empirical correspondence can add nothing substantive.

²⁵ This is true of single relationships, and the difficulties are hardly surmountable for multi-equation models where income, for example, may appear in one equation as an independent variable and then again in another equation as a dependent variable.

²⁶ A point of some stress is the "flow system" in Mattessich, *ibid.*, and its linkage to stocks of things. The concepts of "flows" and "stocks" are very important in economic theory, and are especially well developed in the writing of Irving Fisher and Ragnar Frisch, both competent mathematicians.

equations are scarce items in accountancy.

If accountancy does not have the sort of tools needed, some of these tools may be adapted from economic theory. Economic *concepts*, such as capital, profit, and the like are quite frequently compared with accounting usage. This is all to the good, but the critical tool is a functional relationship, where two or more concepts are involved. Stated again, the lack is not in definitional functions, but in behavior, equilibrium, stability, and restraint functions.²⁷ If this sounds as though accountants can be expected to look ahead as well as back, this is a proper inference. If accountants refuse to look ahead, this gap will continue to be increasingly filled by operations research men, who do combine accounting data and economic models.²⁸

Economic theory also has considerable to gain from the sorts of developments suggested for accountancy. In the process of maturing, economic theory has become increasingly concerned with the empirical correspondence of economic principles. Nearly all the data of such empirical studies have at some stage been collected and organized by accountants. Precepts that have guided the accounting process have surely influenced the findings of economists. Probably the most serious criticism of economic theory until twenty or thirty years ago was its preoccupation with deductive analysis and its lack of empirical analysis. Remedyng this lack very likely made easier the writing of John

P. Powelson's *National Income and Flow-of-Funds Analysis*.²⁹

In general, then, the introduction and manipulation of behavior relationships are most fruitful sources of versatility and development in accountancy. As an applied science, accountancy should be expected to accept, modify, create, and feed back functional relationships above the level of definitions to some theoretical science. The case here has been argued for economic theory. In its applied aspects, accountancy would manipulate and quantify these same functional relationships in its practical domain. Finally, the practical domain seems unnecessarily limited to an *ex post* or looking back point of view.

²⁷ For example, we have presented an equilibrium condition (7 above) that is appropriate if profit maximization is the goal of the firm. Empirical analysis indicates satisfactory profits combined with a satisfactory share of the industry's market are more common goals. If share of the market is important to management, labor, present and prospective security holders, as well as others, then accountants are not engaged in collecting all the indicated data. During depressed conditions when generally profits are falling or even negative, an increased share of the market may be an indicator that our firm is *relatively* better off, and an indication of profits to come.

²⁸ Two interesting survey articles in the *American Economic Review* are Robert Dorfman, "Operations Research," Sept., 1960; H. A. Simon, "Theories of Decision Making in Economics and Behavioral Science," June, 1959. Accountants are not unaware of this vacuum that is being filled by mathematicians and others; for example Paul Kircher, "Theory and Research in Management Accounting," *THE ACCOUNTING REVIEW*, Jan., 1961, pp. 44-45 esp. The importance of an *ex ante* point of view is argued by Oswald Nielsen, "New Challenges in Accounting," *THE ACCOUNTING REVIEW*, October, 1960, pp. 586-7.

²⁹ New York, 1960, McGraw-Hill Book Company, Inc.

ACCOUNTING FOR DECISION-MAKING*

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FOR many years, the management community has regarded the accounting discipline as one of its principal tools in the decision-making process. The accounting systems of business have traditionally provided much of the financial data and much of the analysis of that data applicable to decision-making purposes. Today, however, there are symptoms of management dissatisfaction with current accounting systems. Many managers believe the accounting function has failed to adjust its objectives and activities to the decision-making requirements of a changing business world.¹

This charge—that the accounting profession has not kept itself up-to-date—could be the subject of an acrimonious debate. The purpose of this article is not, however, to debate the merits of what accountants have done in the past. We assume neither that accountants are so out-of-touch with the management process as to be obsolete, nor that accountants are so far in the vanguard of newer management movements as to be complacent. Instead of finding fault with the past, we propose to discuss some of the challenges that accounting faces today and in the future. We believe that one of these challenges may be characterized as “accounting for decision-making.”

WHAT IS ACCOUNTING FOR DECISION-MAKING?

Accounting for decision-making involves a particular way of viewing the decision-

making, or managing, process in business. As characterized in a recent monograph by Herbert A. Simon, the decision-making process does not consist solely of the choice involved between two or more alternatives. The decision-maker is not “the alert gray-haired businessman, sitting at the board of directors’ table with his associates, caught at the moment of saying ‘aye’ or ‘nay.’”² Decision-making involves something more than the final choice which is the culmination of the decision process.

As first described by John Dewey,³ decision-making, problem-solving, or managing may be viewed as involving a three-stage process aimed at answering the following questions:

- What is the problem?
- What are the alternatives?
- Which alternative is best?

What relevance does this decision-making process have to accounting?

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¹ For a statement of this position, see C. West Churchman and Russell L. Ackoff, “Operational Accounting and Operations Research,” *The Journal of Accountancy*, February, 1955, pp. 33-39.

² Herbert A. Simon, *The New Science of Management Decision*, Harper & Brothers, New York, New York, 1960, p. 1.

³ John Dewey, *How We Think*, Heath & Co., Boston, Mass., 2nd Edition, 1933, p. 120.

The tie between the accounting process and the decision-making process described above is basically one of information. In its broadest and most fruitful sense, accounting is an information or data-providing function—and information of one kind or another is required at each stage of the problem-solving process.

Consider, for example, the first stage of the problem-solving process: What is the problem? A standard cost system is an information system designed to answer this kind of question in a specific, although limited, area. One of the uses of a favorable or unfavorable variance generated by a standard cost system is simply to tell management that it has a problem, a decision to make. A standard cost system doesn't define the alternatives—that requires investigation of the reasons for variance—nor does it tell which alternative is best. The standard cost system is an information device to indicate when there is a problem.

As a further example of the information link between accounting and decision-making, consider the third stage of the decision-making process. Choice of a best alternative requires criteria against which to judge various possibilities. Choice requires information concerning the various alternatives—information cast in a form consistent with the criteria. For example, the choice of investment alternatives may be judged against a rate-of-return criterion, and information about the alternatives must be provided in rate-of-return form. Here we have another case where accounting in the information-providing sense is clearly linked to the decision-making process.

In talking about accounting for decision-making, we are considering perhaps two fundamental characteristics of the information system of a business. These characteristics can be summarized by the following questions:

1. *Which alternative is best?* For any given decision, which is, in fact, necessary, what information is required to make the decision?
2. *What is the problem?* For any given organization and its objectives, what information is necessary to determine what decisions are, in fact, required?

In general, these two questions are related to two management decision areas where much current attention is being concentrated.

The first question is related to "routine" decision problems—regularly recurring problems which are programmed or structured. In controlling inventory, for example, a routine decision is, "How much to buy?" Considerable progress has been made in determining good criteria for such routine decisions and in determining the information necessary to make such decisions.

The second question is largely related to "special" decision problems—irregularly occurring problems which are unprogrammed and unstructured. How and when, for example, should a business undertake a thorough review of its plant location policy or its organizational structure? When should a firm consider switching from a policy of price following to a policy of price leadership? How does a business recognize that its routine decisions are uncoordinated?

These two questions, their related problem areas, and current research pose many challenges for the accounting profession. We will first discuss challenges in the routine decision area.

ROUTINE DECISIONS

In assessing the challenges that accounting information systems present in the routine decision area, it is profitable to review some of the common deficiencies of information systems today.

Over-information

This is the situation where too much information is made available to the decision-maker. Detailed or refined data are supplied when summary or gross data would suffice. This situation frequently exists where detailed information is required at one decision point, but summary information would be adequate for a decision at another point. As a result, complete detail is given to all users of the data. An example of over-information in military accounting is the detailed costing of nuts and bolts for the indirect reason that detailed unit information is required for inventory control.

On the matter of over-information, a note of alarm should be sounded. Massive quantities of detailed information are available with current electronic data processing systems. Unless these data are properly screened and summarized, the individual manager can easily become flooded with unnecessary information. The manager can spend the bulk of his day ferreting out or summarizing those facts which are required in order to make a decision.

In many installations of data processing systems made to date, there is the serious question whether the needs for information have been adequately considered in the systems design. It is often easier to generate an abundance of data than to go through the difficult process of deciding which data are necessary.

Under-information

Another characteristic of some present-day information systems is the lack of adequate information to make an appropriate decision. This condition we can refer to as *under-information*. Traditionally, accounting systems have recorded only data stated in terms of dollars. For many situations, however, such data are not particularly useful, and other data are

required. In item inventory control, for example, unit information is perhaps most important and helpful; dollar data are largely irrelevant. Another example of under-information relates to unfilled orders or lost sales. Information regarding lost sales is apt to be more significant for many decisions than are carefully quantified data on completed sales transactions.

In order to correct problems of under-information, there are two approaches. First, the new methods of processing data are making it relatively easier to supply information which might not normally be accumulated in a typical accounting system. Second, accountants can broaden their interest and responsibility for information stated in non-dollar units of measurement—information which is typically needed and required in order to make adequate decisions in many operating areas.

Untimely information

There are two kinds of untimely information. There is that information which comes too late, or is supplied less frequently than necessary. There is information which is supplied too often simply because it is prepared routinely. In the first case, accountants have considerable responsibility for getting data to management in a prompt and useful fashion. Monthly financial statements or monthly budget status reports which come out too late to be useful as a basis for corrective action might as well not be generated. In the second situation, there is no need to supply, routinely or regularly, data which are needed only at irregular or sporadic intervals.

There are generally two corrective approaches to the problem of untimely information. There is the concept of exception reporting, which has gained much acceptance today. There is also the proper use of analytical studies. Information systems

should be capable of developing an analytical report which is useful in making a particular decision—if and when it is necessary to make that decision. Detailed analytical reports should not be supplied routinely, however, with the idea that they *may be* required for a decision which *may have* to be made.

THE DECISION-MAKING VIEW

At the present time, many applications of the accounting for decision-making point of view to routine decision problems are being made in business. These applications are often made in the name of operations research, management sciences, management services, or some other title. Whatever the title, the accountant applying this viewpoint must consider the following series of questions:

1. What is the decision that needs to be made?
2. What is the best rule for making the decision?
3. What information is required in making the decision?
4. How accurate must that information be?
5. How frequently should the information be supplied?
6. What is the most logical source for generating the information?
7. How can the information best be obtained and transmitted to the user?

An information system which is developed after consideration of these questions will not, of course, guarantee that the answers to each problem will be the best possible answers. Rather, this approach to system design guarantees only that the right questions are being asked.

Assume, for example, a particular area of control which has always been a problem—inventory—and consider the relationship of the stated questions to an analysis of a typical inventory control problem.

Decisions which must be made in the routine management of each item of inventory may be stated as follows: How much to buy? When to buy?

Much progress has been made in the spreading use today of the standard lot size formula and reorder point formulas—improved decision rules for determining how much of an item to buy and when to buy it. These improved decision rules create, however, a host of new information problems. It is important to know that these rules require the explicit consideration of certain information which heretofore has often been considered intuitively:

1. The cost, in the opportunity sense, of running out of an item.
2. The cost, in the opportunity sense, of holding an item in inventory.
3. The cost, in the money sense, of procuring an item.
4. The expected future demand for the item.

The accounting function is presented with a need for new kinds of information not generated in conventional accounting systems. In addition, the task of evaluating accuracy, timeliness, source, and transmission requirements for these new kinds of data must be performed.

The fact that routine decision rules can be improved by scientific analysis has already been demonstrated in the inventory control, production control, and investment fields. Improved decision procedures, based on such logical analysis as we have described, are being increasingly accepted by business. Current research can be expected to produce further improvements in methods of making routine business decisions.

The implications of these developments for the accounting information function seem fairly clear. Accounting within the firm must concern itself more with integrating information flows with decision

requirements. Information flows must be tied directly into decisions which are to be made. Information flows to decision points must be accurate and timely, whether the decision point be a machine, a man, a department, or a board of directors.

In the future, we can expect to learn more about the effects of information frequency (and accuracy) on routine decisions. Tremendous technical strides in methods of information transmission and information reduction can be expected. In particular, electronic data processing and statistical sampling promise revolutionary changes in information processing methods.

SPECIAL DECISIONS

In our discussion of accounting for decision-making as applied to routine decisions, we have assumed the decisions to be made by an organization must first be specified before an intelligent design of the information flow is possible. Determination of the decisions to be made comes properly before specification of the data which should be supplied. Since the decisions which must be made are not always obvious, this brings us back to the first question posed: What is the problem?

To determine what decisions should be made—What is the problem?—is perhaps the essence of the present art of management. It may be considered the highest management art for, in most instances, it carries with it the highest penalty for failure. An organization which does not recognize that it has a poor system for routine inventory decisions will suffer reduced profits. An organization which fails to recognize in time the necessity for a major investment decision may go bankrupt. An organization which fails to integrate routine decisions with each other and with the objectives of the organization may suffer the same fate, even though the routine decisions are independently well made. But how can management recog-

nize such special problems? At the present time, there are no satisfying answers to these questions.

Although our present fund of knowledge about how problems are recognized is exceedingly meager, we do know a few things, and current research is promising some breakthroughs in this decision area. We know, as we have previously pointed out in connection with a standard cost system, that information of one kind or another is required to recognize problems—to signal that the determination of a lower level decision is required. At the present time, managers acquire the information which spurs problem recognition in many haphazard and random ways. Often the manager must hunt for and search out the information leading to problem recognition.

Nonetheless, it is not too optimistic to hope that, in the future, information systems can be devised which will aid the manager in the problem recognition stage of decision-making. Information systems of the future may be commonly applied to the problem recognition phase as well as to the alternative choice phase of the decision-making process. Under the title of heuristics or heuristic programming, a considerable amount of management service research directed toward such a goal is being conducted today.⁴

Again, we believe the implications of these developments for accounting for decision-making are clear. As business organizations structure their decision activities, it will be with the help of more complex and sophisticated information systems. The responsibility of the accounting information function must, of necessity, increase.

Perhaps the primary implication of the notion of accounting for decision-making is

⁴ A. Newell and H. A. Simon, "Heuristic Problem Solving," *Operations Research*, Vol. 6, January–February, 1958, pp. 1–10.

that accounting practice of today must move ahead, with new thinking and new methods. In the past, the accounting function has been a principal source of information flows within a business. The accounting function in the future will assume an expanded responsibility for information flows. Accounting has an obligation to take a significant part in the development of new quantitative information systems.

As a part of this development, account-

ing must divert itself from its preoccupation of the past with fiduciary and stewardship responsibilities. Responsibility for fiduciary decisions is a proper and major concern of the accountant. However, if the accountant is to comprehend and contribute to the decision-making, information-flow process within tomorrow's business organizations, he must integrate his stewardship responsibility with a responsibility for broader management decisions.

AN ECONOMIST LOOKS AT INDUSTRIAL ACCOUNTING AND DEPRECIATION*

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IN THE July 1959 issue of the *THE ACCOUNTING REVIEW* there is an article on industrial accounting¹ which recommends the use of economic criteria in accounting for capital expenditures and depreciation. This paper represents a great step forward from traditional accounting practice and so perhaps economists ought to cheer quietly from the sidelines. However, I am not willing to let well enough alone and wish to propose a further step which the accountant might take to bring the system of accounts more into line with economic reality.

Coughlan's main argument is that accounting should be on a project basis, and that the asset value on the balance sheet should reflect the present value of the future earnings of the project. While this apparently represents a substantial departure from traditional practice, Coughlan conforms to traditional practice by insisting the value of the earnings of the project must be equal to the cost of the project. For any project, Coughlan suggests discounting the earning stream at that rate² which makes the present value of the earning stream equal the initial cost. If earnings are realized as planned, and future expectations are unchanged, then he suggests this same internal rate of return be used to determine the present value of the future earnings at the end of the first year. The depreciation during any time period is the difference between the present values of the future earnings at the beginning and ending of the period. If the expectations are not realized, Coughlan recommends recalculating the internal rate of return as

of the date when the expectations change, and then determining the present values and the depreciation as before.

The proposal I wish to make is that the cost of capital should be used to discount the future earnings of the project. This interest rate is superior to the internal rate of return in three respects.³ First, it recognizes the firm may make a capital gain on its projects, in the sense that a project may have a higher present value than its initial cost, either when the project is initiated, or after several years. Second, it permits the firm to discount the earnings from all projects at the same rate. Third, it permits the firm to discount the earnings of the project at the same rate whether expectations are realized or not, so the discount rate need not be recalculated every time the expectations of the firm change. Let us consider each of these points in more detail starting with the third and least important, and moving back towards the first and most important.

It does not make sense to change the rate at which earnings of a project are discounted simply because future expectations have changed. Coughlan presents a case in which the internal rate of return is

¹ John Coughlan, "Industrial Accounting" (415-428).

² This rate is called the "internal rate of return," and the procedure is called the "discounted cash flow."

³ The author is indebted to Leonard Morrissey of Dartmouth College, David Green, Charles Horngren, and George Sorter of the University of Chicago for helpful comments and criticism.

⁴ There are other objections to the internal rate of return, including the fact there may be two or more such rates. For an excellent discussion of this and other criticisms of the internal rate of return, see Jack Hirshleifer "On the Theory of Optional Investment Decision," *Journal of Political Economy*, August, 1958, 329-352.

initially 29%, but increases to 30% on the basis of changed expectations at the end of the first year. Clearly a change in the discount rate of 1% is quite small and probably not worth arguing about. On the other hand, there is no reason in principle why the 29% rate should not have become 50% or 10% on the basis of changed expectations, in which case the change would be substantial enough so that it should not be ignored.⁴ Suppose, for example, a firm initially expects a project to earn \$1,000 per year for five years; and that it realizes this \$1,000 during the first year, expects to earn \$1,000 during the second year, but discovers it can earn \$1,500 per year for the last three years of the project. According to Coughlan's proposal, the value to the firm of the \$1,000 earned in the second year is higher before the project expectations change than it is after the expectations change. That is, the internal rate of return of the project increases as the result of the increase in earnings during the last three years of the project. The rate at which the \$1,000 to be earned in the second year is discounted is therefore increased when the expected earnings of the project are increased. This means the present value to the firm of the \$1,000 during the second year⁵ is reduced on the basis of changed expectations during future years. There is no justification for this reduction in the present value of future earnings.

The same kind of objection can be raised in respect to the comparison of earnings from different projects. Suppose a firm has two projects under way instead of only one. Project A has an internal rate of return of 20% and project B has an internal rate of return of 25%. If each of these projects is expected to earn \$1,000 during the forthcoming year, Coughlan's proposal tells us the earnings from project B are less valuable to the firm than the same dollar earnings from project A. It is possible, of course, that a firm might wish to discount

the earnings of one project at a higher rate than the earnings of another project if it felt one project was riskier than the other. It is also possible the firm might wish to discount more distant income at a higher rate than less distant income, also because of the greater uncertainty associated with the more distant income. Coughlan's suggestion, however, has nothing to do with the relative uncertainty of the two projects. He says earnings from project B are less valuable than earnings from project A simply because project B has a higher internal rate of return. There is no reason why a dollar from one project should be more or less valuable than a dollar from another project, provided both dollars are actually earned by the projects, and they are earned at the same time.

If all projects are discounted at the same rate, some projects will not have a present value equal to their cost. Some projects will have a present value higher than their cost, while other projects may have a present value lower than their cost. The appropriate criterion for investment projects is of course to select only projects which have a present value at least as high as their cost,⁶ so no project should be undertaken whose present value is less than its cost and therefore involves an immediate capital loss. Some projects, however, will be undertaken which have present values exceeding their costs, and a capital gain should be recorded immediately when the project is undertaken. This

⁴ It might also turn out that expectations were adjusted downward so sharply that only a negative rate of interest could make the future income stream equal to the initial cost. In this case Coughlan's proposal is nonsensical, while my proposal involves discounting these future returns at the cost of capital, observing that the present value of the project is less than its cost, and recognizing the fact the project has proved unprofitable and a loss has been suffered.

⁵ The same thing is also true of first-year earnings, whose present value is also changed as a result of the improved outlook.

⁶ See, for example, my paper "On the Problem of Capital Budgeting," *Journal of Finance*, XIV (December, 1959), 473-492.

is apparently recognized by Coughlan, in that he notices that the cost of the project is the lowest possible value for the present value of the earnings. He is unwilling, however, to accept the idea that any higher value should be placed on the balance sheet.

Coughlan's reluctance to place a higher value for the project on the balance sheet is apparently associated with his idea that any additional value for the project is unearned at the time the project is initiated. Thus his balance sheet has an item calling for "estimated future net receipts," from which he subtracts "unearned income" to arrive at the "present value of estimated future net receipts." It is obvious, however, that no income has been earned by the project at the time it is initiated. Any income from the project will be earned in the future, and the only problem for the accountant is to decide how much of the future earnings of a project should be considered as profit and how much should be considered as cost or depreciation. Coughlan's solution, which amounts to saying any expected earnings over and above the initial cost of the project are unearned when the project is initiated, but which recognizes expected earnings up to the cost of the project as "earned," is not realistic.⁷ Nothing but the cost is realized when the project is initiated and all receipts or earnings are hypothetical. There is no reason to treat some of the expected future earnings as "unearned" and others as "earned" (or, more properly, "paid for").

My proposal, which is to discount all projects at the same interest rate, amounts to accepting capital gains and capital losses as soon as management has found out they have occurred. The accountant may object that this is an exceedingly difficult thing to do (highly "subjective"), since it involves continuously estimating the future returns which will be obtained

from each project. I can only argue it is the business of management to make such estimates, and such estimates are also continuously made by investors. It is simply unrealistic (whether or not it constitutes conservative practice) to say a firm must actually realize the earnings from a project for the present value of the firm to rise. The owners of any firm which suddenly finds oil or uranium on its property know full well they do not have to wait for the project to earn income for them to realize their capital gain. The stock market immediately discounts the expected returns from the project and increases the value of the stock accordingly. Thus the owners are in fact in a position to realize the capital gain just as soon as the discovery is publicized (and the firm could also realize the gain by means of a sale-and-lease-back arrangement). For such a company to list the value of its assets at cost is simply to deny the economic reality of the situation. The value of the assets is the present value of their future earnings, and this may be more or less than historical cost.

My proposal amounts to saying the value of the assets of the corporation should be approximately equal to the market value of its liabilities and stockholders' equity. The liabilities of a firm typically involve fixed dollar obligations of varying maturities (from so-called "current liabilities" on through bank debts and bonds) and equity. It is the function of the stock market to place a dollar value on the equity, and in this way to determine the total dollar value of the assets of the company. It would be undesirable to have the value of the assets on the balance sheet of the company fluctuate quite as violently as the stock market suggests, since the stock

⁷ It is true, of course, that Coughlan does not say the difference between the "estimated future receipts" and the "unearned income" has already been earned, but the implication is fairly clear.

market is influenced occasionally by things other than the present value of the assets. That is, the market is occasionally subject to rather wide swings of optimism and pessimism in which it projects unreasonably high or low future earnings for the firm.⁸ The firm's own estimate of its future earnings, as revealed by its balance sheet, would presumably not be subject to such wild swings of optimism and pessimism, and should not be subject to the extraneous pressures put on stock prices in the market. Furthermore, it would be revised substantially less frequently than is the market estimate of the value of a firm, and should therefore be substantially more stable through time. The objective of the accountant of a stable value for the assets of the firm is at best a mirage. The fact is the value of the firm, and of the firm's assets, fluctuate constantly through time as the future earnings look larger or smaller. An accounting procedure which denies this obvious fact is simply an academic exercise which should be of no interest to the business man.

My proposal is complicated by the fact that most firms have at least two projects under way, and these two projects may be interrelated. The total value of the firm should be the present value of the expected earnings from all the projects. It may be, however, that the management or the stockholders wish to estimate the value of the different components of the assets of the firm, whether these components be broken down by project or by pieces of equipment. In this case, each individual project (or asset) should be evaluated on the basis of its marginal contribution to the firm. This means the cash flow to be associated with any project is the total cash flow to the firm from all its projects less the cash flow which the firm would achieve if it were to abandon the project. If we use these definitions and the firms' projects are interrelated, it will probably turn out that

the sum of the values of the projects is not the value of all projects taken together, which is the value of the firm. Thus it may turn out that the earnings of a firm with only two projects would decline by 40% if either one of the projects were abandoned and the other were maintained. In this case, the value of the projects would fall short of the value of the firm and another project, which we might call the "interaction" project, would have to be listed on the balance sheet. Conversely, it might turn out that the abandonment of either project individually would reduce the earnings of the firm by 60%, in which case the sum of the project values would exceed the value of the firm, and the interaction asset would have a negative value.⁹

This proposal also constitutes a "solution" to the depreciation problem.¹⁰ There

⁸ The financial pages occasionally suggest that the market is "discounting not only the future but the hereafter." This terminology clearly suggests that the market does not wait for expected earnings to be realized, but adds future expectations to the current market value. Thus the market is willing to discount these future earnings so the current owners can capitalize them if they wish, but conventional accounting practice requires that the firm ignore these facts.

⁹ The economist will recognize this problem is similar to the problem of distribution, where we suggest each factor should be paid the value of its marginal product, and then wonder whether the firm will have enough income to meet these expenses, or will have too much or too little. In this case, it can be demonstrated the payment to each factor of its marginal product will just exhaust the product if the production function is subject to constant returns to scale, but otherwise will either fall short of or exceed the product. In the case discussed in the text, we are interested in associating earnings with particular projects. My suggestion is to allocate to each project its marginal earnings, and the sum of the marginal earnings may not equal the total earnings of the firm.

¹⁰ It also has implications for the accounting for obsolescence, which is discussed in a paper by Green and Sorter, "Accounting for Obsolescence—A Proposal" *THE ACCOUNTING REVIEW*, July, 1959, 433-441. They suggest the asset value of a particular piece of machinery declines simply because another more efficient machine is invented even though the future earnings of the present equipment are unchanged. If, as I propose, the balance sheet entry for the value of an asset represents the present value of the future earnings of that asset, the balance sheet value of the asset should change only if the projected future earnings change, or if the cost of capital to the firm changes. It cannot change simply because another machine has been invented which can do the job more cheaply. In the example which Green

are two aspects of the depreciation problem: one is to provide a legal definition of costs so corporate income can be calculated for tax purposes, and the second is to provide management and investors with an indication of the profitability of the firm. The legal problem is worth mentioning only because I want to emphasize that the two problems are conceptually independent. The firm should handle its legal depreciation to minimize its corporate income tax liability. This action should be taken no matter what the management believes the true costs or earnings of the firm to be.¹¹

From the point of view of determining the economic costs and economic earnings of a firm, the depreciation on any asset or project during a year is the difference between the present value of the future earnings of the asset at the beginning of the year and at the end of the year. If the expectations of the firm are realized during the year, and are unchanged for future years, then the depreciation equals earnings during the year less the interest on the asset value at the start of the year.¹² In this case, since the firm performed up to expectations and these expectations had already been allowed for in determining the value of the firm, the earnings of the firm (net of depreciation) would just equal the initial asset value multiplied by the cost of capital, i.e., the firm would earn what the economist would call a normal rate of return (equal to the cost of capital) on its investment (its initial asset value). If expectations were changed, then the depreciation cost would be different, and the rate of return earned by the firm would differ from the cost of capital.

It is also worth noting that the earnings or losses of the firm can be determined without any explicit depreciation calculation. For simplicity, let us consider a firm which makes no investments during the year, so at the end of the year it is con-

tinuing with projects previously undertaken, and has accumulated some cash. The cash can be used at the end of the year either to invest in new projects or can be returned to the stockholders. Such a firm is earning profits if the value of the assets at the end of the year, plus the accumulated cash, is greater than (or equal to) the value of the assets at the beginning of the year plus the interest charge on the value of all these assets. If the firm pays out all the cash to its stockholders, then the total asset value of the firm declines, but the stockholders are compensated for this decline in the value of the firm by an increase in the value of their cash balances. If the firm pays out to the stockholders only the interest on the initial asset value, and reinvests the remainder in projects which have a present value exactly equal to their cost, then the firm maintains its asset value and is making no economic profit. If it can find investment projects which have a higher present value than their cost, then it should undertake such projects and the undertak-

and Sorter discuss, neither the expected earnings nor the cost of capital has changed, and therefore I would argue the introduction of the more efficient equipment does not influence the value of the asset held. In their example, the existing asset is expected to earn \$2,000 per year for five years, and the cost of capital is given as 6%. The present value of this asset is therefore \$8,424 whether or not a new machine is available. The new machine, according to their assumptions, can earn \$2,500 per year for five years. It therefore has a value 25% greater than the existing asset, or \$10,530. Since the machine can be purchased for \$5,000 (according to their assumptions), a capital gain of \$5,530 can be realized by purchasing the new machine. Since scrapping the old machine would involve a capital loss of \$8,424 (on the assumption that it has no value in the market), the firm should not purchase the new machine and retire the old one, since this involves a net capital loss of \$2,894. If the old machine can be sold for this amount or more, it should be traded in so the new one can be purchased.

¹¹ The problem of how the government "ought" to define corporate income for tax purposes is outside the scope of this paper.

¹² If the expected earnings are E_1, E_2, \dots, E_n , then the asset value at the beginning of the year, A_1 , is $A_1 = E_1/(1+r) + E_2/(1+r)^2 + \dots + E_n/(1+r)^n$, where r is the cost of capital. The asset value at the end of the year is $A_n = E_1/(1+r) + E_2/(1+r)^2 + \dots + E_n/(1+r)^{n-1} = A_1(1+r) - E_1$. The depreciation is $A_1 - A_n = E_1 - A_1r$.

ing of these projects increases the asset value of the firm and the wealth of its owners. This increase in wealth is reflected in an increase in the value of the assets of the firm and an increase in the value of the stock. The stockholders can realize this capital gain immediately if they wish to sell some of their holdings. Otherwise, the stockholders can realize this gain in terms of the dividends which will subsequently be earned on this higher level of assets if the expectations of the management are realized.¹³

According to this formulation a firm makes profits only by investing in projects which have a present value higher than their cost. It loses money, conversely, by investing in projects which have a lower present value than their cost. This means firms make profits only if they increase the wealth of their owners, and lose money if they reduce the wealth of their owners. If firms maintain the wealth of their owners, this means they are earning a normal rate of return on the owners' investment and are breaking even. If the accountant wishes to break down the cash inflow to the firm

during the year into a depreciation cost and a profit, the accountant is free to do so. From the point of view of the economist, however, this breakdown is unnecessary.

Summary

I am proposing that balance sheet statements are brought nearer to economic reality by reflecting the present value of the expected receipts from projects instead of reflecting their cost. In this way the balance sheet value for assets would approximate the market value as determined by the stock market. This has the advantage of making the balance sheets recognize capital gains and losses when they are in fact realized by the firm's owners, i.e., when the expectations change rather than when the earnings themselves finally change. In addition, explicit depreciation calculations are not needed to determine the performance of the firm if the statements are made in this way.

¹³ The idea that stockholders "realize" the increase in value only if they sell is a fiction promoted by tax laws. Earning higher dividends in future years "realizes" the gain just as effectively as sale of the stock.

ACCOUNTING AND STATISTICS

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INCREASED emphasis on the quantitative aspects of managerial decision-making is one of the facts of current business life. As business operations become more complicated, the decisions of managers have greater impact upon people and conditions, and it would be expected the added demands upon management would be met by increasing search for more objective, dependable, and positive data upon which to base decisions. Quantitative methods have proved effective in the natural and applied sciences, and the use of accounting and statistical data in business would again lead one to expect that these two fields would feel some pressure for additional help in providing data for decisions. Recent improvements and extension in methods of data processing tend to make possible even broader and more effective use of the kind of information that can be had through accounting and statistical processes.

All this means a greater opportunity for those who gather, analyze, and prepare such data for the information of decision-makers, an opportunity that will not be overlooked. But the added potentialities for service bring with them a set of responsibilities, for the fact that quantitative data permit fine distinctions to be made and extended over considerable areas of choice means that more care is needed in preparing and interpreting the information. The very objectivity of quantitative data gives them an apparent validity, and it is easy to assume they have an inherent reliability that they may not in fact possess. Increasing emphasis upon quantitative data makes it even more necessary

than before to be sure the data are adequate, relevant, and promptly available. This, in turn, carries a responsibility for making the best possible use of all available techniques to provide data which will maximize the chance of correct decisions.

Against the background of this set of conditions, it may be worth considering again the functions and methods of the two basic quantitative disciplines—accounting and statistics. How are these disciplines related, and how can they best be used to serve managerial needs? Do they duplicate or overlap? Are they distinctly separate, or are they complementary? Questions of this kind are currently being asked in business school faculty committees, in which debates about curriculum and course content are being waged with even more than the usual ardor, now that soul-searching had become a popular indoor sport. But the same questions arise in the world of business affairs, as new methods and new sources of information are fitted into the overall schemes of planning and control.

Questions of this kind may themselves seem new in their present forms, and in the current degree of emphasis, but they are really not new at all. More than thirty years ago, when business schools were (at least comparatively) something of a novelty, Rorem¹ discussed the question of how these two disciplines were related. He stressed the fact these techniques were similar in that they were both tools of control, even though their methods, orientation, and emphasis were different. Can-

¹ C. Fufus Rorem, "Similarities of the Accounting and the Statistical Method," *THE ACCOUNTING REVIEW*, II, No. 2, (1927) pp. 10-18.

ning's attempt to explain and systematize the philosophical basis of accounting in an economic world² stressed the nature of accounting measurements as essentially statistical, even as related to valuation and the measurement of income. Twelve years ago, Scott pointed out that the accountant cannot completely solve the problem of providing managerial information by the sole use of his own techniques. He wrote:

As he makes accounting more useful to management, the accountant develops more elaborate techniques, until he finds himself beyond his depth, in waters where his traditional rules and guides do not apply.³

Thus, the accountant needs to know the limitations of his tools; yet, as Scott also points out, the statistician must be aware, if not wary, of accounting methods and conventions:

Unless the statistician knows the rules by which the data were assembled, he does not know the significance and the limitations of his data.⁴

Whether or not Scott would have advocated the integration of the two fields is not clear; he was more concerned with the patterns of accounting principles and theory than he was with the mundane aspects of data processing and analysis. Yet it is obvious that he, as well as many others, saw the pattern of relationships between accounting and statistics, and recognized at least some of the issues involved. The affinity of these two subjects has led to attempts to "integrate" them in business school curricula. The Harvard "Control" course—and its derivatives and descendants developed in other schools—have tried to put both statistics and accounting into a single package. A detailed proposal of this kind was presented as recently as January, 1960; the opposing side of the discussion advocated a special course for accountants in the use of statistical tools.⁵ It should be noted, however, that in none of the foregoing is there any

indication that accounting and statistics are mutually exclusive, or that they may serve as substitutes for each other. Rather, the position usually taken is that these two disciplines are both important, that they are both useful, but they are different.

The purpose of the present paper is not to discuss how accounting and statistics should be taught, nor are we concerned here with the relative emphasis that should be accorded them in ideal curricula intended for the preparation of accountants or other businessmen.⁶ The present aim is to throw a bit of light on a more fundamental question: to what extent are these two fields really separate and distinct; how independent are these methodologies, with respect to the functions they really should serve, in the collection and use of managerial information? This is an issue of needs and purposes, of uses and scope. It must be answered before questions about relative emphasis, methods of teaching, and such can be approached. The answer to the question of interdependence of these disciplines may have much to do with the adequacy of service to be rendered by either the statistician or the accountant; some problems need to be tackled by both techniques used together, rather than being only partially and inadequately "solved" by either one alone.

In examination of this idea, it may be worthwhile to review some of the factors various writers have cited as the points of

² John B. Canning, *The Economics of Accountancy* (New York: Ronald, 1927).

³ DR Scott, "The Influence of Statistics upon Accounting Techniques and Theory," *THE ACCOUNTING REVIEW*, XXIV No. 1, (1949) p. 82, f.

⁴ John T. Wheeler and Richard H. Cyert, "An Integrated Course in Statistics and Accounting," *THE ACCOUNTING REVIEW*, XXXV, No. 1 (1960), pp. 51-59; Francis J. McGurr, "The Integration of Statistics and Accounting" *loc. cit.*, pp. 60-63.

⁵ R. A. Gordon and J. A. Howell, *Higher Education for Business* (New York: Columbia University Press, 1959) pp. 209-224; 247-250.

⁶ Frank Pierson, *et al.*, *The Education of American Businessmen*, (New York: McGraw-Hill, 1959), pp. 319-354; 227-228; 266-267.

difference or distinction between accounting and statistics. As we shall see, some of these are less valid than others; some merely accentuate the need for a combined application of technique.

DOUBLE-ENTRY

The technique of double-entry, upon which so much of accounting method appears to have been built, has long been considered an exclusive characteristic that distinguishes accounting from other quantitative methods. Mautz⁶ cites this as a basic difference between the quantitative methodologies in business. Practically every writer that deals with this issue views the double-entry method as the distinctive characteristic of accounting. Double-entry is presumably inherent in the accounting theory of the firm; from Paciolo to the present, it has occupied an essential position in the structure of received accounting theory. There is no doubt of the usefulness of the double-entry pattern, and it is obvious the structure of extant financial reporting is tied specifically to the balanced completeness of duality in business transactions. It is submitted, however, that this (like other useful conceptions) is not an absolute essential of the accounting process, any more than the corporate concept of personal entity is basic to the recognition and reporting of transactions. The notion of business-entity is flexible; it can be applied to a proprietorship, a fund, an institutional or branch-unit, a collection of affiliated enterprises, or a national economy. The appropriate supplements required to maintain various kinds of "entity" can be supplied or withdrawn as occasion demands.⁷

BUSINESS ENTITY

It is convenient to use double-entry as a check upon the adequacy and completeness of record (in financial statements, as

well as within the system of data collection and processing), but it cannot assure more than a framework within which accuracy and consistency are promoted by a set of limitations and constraints. One reason for difficulty in dealing with certain kinds of transactions (e.g., stock-option arrangements, share-dividends) is that some aspects of transactions do not lie within a given entity. One source of confusion in accounting theory is a shifting viewpoint with respect to the nature of "business-entity."⁸

One of the ways in which operating data are collected to serve managerial purposes is to establish "special-purpose" entities; these are operated and accounted for on what is essentially a single-entry basis. Subclassification of sales, by territories, commodities, or method of sale is a case in point. Controlled by appropriate checks related to an overall double-entry structure, such data are presented in whatever detail required; but the classified information is not a double-entry record or report. The same is true of a functional or other administrative classification of costs; the departmental records and analyses are inherently of statistical rather than double-entry form and content. The tabulation of control data for the protection of assets and the control of investment in inventories and equipment may contain references to "on order," "reserved," and "available" quantities, or to repairs, service-maintenance, or location data. The distinctions between entities and the niceties of balance in double-entry procedure

⁶ Robert K. Mautz, "Accounting and Statistics," *THE ACCOUNTING REVIEW*, XX, No. 4, pp. 399-410.

⁷ No accountant needs to be reminded of the inter-company accounts, cost restatements, and investment aspects involved in consolidations, or in the establishment of branch agency or factory subdivisions. Economists and statisticians may have observed only the "national-income" pattern of eliminations and restatements.

⁸ Stephen Gilman, *Accounting Concepts of Profit* (New York: Ronald Press, 1948).

in accounting tend to disappear when data are collected for managerial purposes.

To make the point more clear, consider the many varieties of test-checks and control-proofs in accounting procedures. A billing machine accumulates a total of sales billed, to make sure no data are lost without notice in subsequent reclassification or analysis; but the control-features of pre-listing, numerical identification of vouchers, locked or otherwise untamperable copies for central files, "line-proofs," and such, are devices to aid accounting—not features of accounting itself. Statistical work sheets employ similar test checks [e.g., a correlation work sheet in which the expansion of $(a+b)^2 = a^2 + 2ab + b^2$ is used to reduce the probability of clerical error] but such checks are not statistics. Double-entry is not an essential, *sine qua non*, of accounting in its operational and functional sphere.

Any doubts on this score may be still further allayed by reference to typical applications of data-processing procedures. It is common to find inventory accounting data being collected in the same tapes as sales information, and both of these being accompanied by re-order signals or processing of replenishment-order forms. The double-entry features of pen and ink bookkeeping are abandoned in many if not all the data-processing procedures currently being used. In some cases the only function of double-entry "procedure" is to explain the fact that a balance sheet must "balance!"

All this adds up to the position that double-entry and the "entity" convention are notions which may facilitate or justify financial reporting procedures, but they cannot and do not make accounting as a process and a discipline different from statistical method. To hang the entire structure of modern accounting upon the peg of double-entry bookkeeping is to confuse a useful but nonessential systematiz-

ing device with the measurements it is supposed to check.

* MONEY-MEASUREMENTS

Another feature commonly supposed to distinguish accounting from statistical processes is that accounting is supposedly limited to pecuniary measurements, while statistical units may be money or anything else, depending upon the situation and problem at issue. There is, of course, some basis for this distinction, in that conventional financial reports are one of the products of accounting. But this distinction disappears in large measure when the accounting system is viewed as a data collection and processing operation, and as the managerial uses of accounting are more clearly recognized.

Many business records maintained as an integral part of the accounting process are non-financial. Reports of tonnage sales, volume of production in units, inventory turnovers of basic materials or parts are commonplace measures that are not monetary. Inventories are often carried in "perpetual" records in terms of units, only; department store stocks are analyzed in terms of unit-records of sizes, styles, and other classifications. Such procedures are especially desirable when inventory control is attempted on a "retail price" basis (as in chain stores) or when the price problem is solved by the use of standards as opposed to average or flow-assumption figures such as "first-in," or "last-in" procedures. Most of the data collected and processed in the computation of product costs are essentially non-financial: units processed, pounds or pieces of material, man-hours, machine usages, and the like. Even though these data may later be transformed into pecuniary amounts, these transformations are basically only extensions of the underlying data which are essentially nonfinancial.

The "money-unit" aspect of accounting

along with the notions of entity and double-entry, are, for many accountants, controlling in the recognition of goals and functions of accounting. These accountants would argue that accounting has limited application to only certain kinds of problems. Some of them would even maintain the accounting convention of dollar measurement is limited to the recognition and reporting of historical data only, and price-level adjustment lie outside the scope of the accounting discipline, along with other "supplementary" and "interpretive" devices. Without attempting to discuss the pros and cons of issues of this kind, we may at least say these distinctions (like the ones we have discussed in some detail), are perhaps true, and may be regarded as factors restricting the activities and the services to which accountants may and should devote their attention. But the broader view, based on the day to day operation of the accounting processes, and more specifically that view which recognizes managerial needs and functions, would seem to be that the distinctions thus far cited are not really sufficient to mark off accounting as a field entirely separate from statistical method.

CENSUS DATA COLLECTION

There are other features of accounting that offer some basis for distinguishing between accounting and statistical methodology. One of those commonly cited is the relative difference in the use of estimates and estimating techniques. The accounting process is one that is oriented to the collection of *complete* data, with attention to documentary and other "support" or verifiable basis to establish what has happened in an aggregative, holistic sense. On the other hand, the statistical view is a partial one, using sampling techniques of various kinds, probability distributions, and the inferences that arise from

these data to formulate conclusions of useful, through uncertain and never wholly complete "census." This factor does make for some variation in conceptual patterns and in the ways in which data are handled under the two approaches.

In order to discharge his responsibility for the protection and control of assets, the maintenance of equitable rights, and the reporting of historical summaries, the accountant must, perforce, record data in their entirety. There is no such thing as a positive control over cash or inventory if one can never be reasonably sure that all transactions are reported as they happened (not the way somebody says or hopes they might have happened!). The amount of settlement with an equity-holder ought not be a matter of guesswork or mere re-negotiation; records are kept to show positively what was or what was not done. Wherever accounting deals with issues that devolve upon the completeness and validity of records, the "census" approach of the accountant is essential and basic. There is something further to be said for a "census" basis of data collection in that the nature of certain populations may be better understood, and the results of sampling more readily and positively interpreted in situations where the parameters of even narrowly specified populations are known with fair precision. But there are cases in which adequate control and information may be had by something less than a 100% check. Despite some reservations on the part of practitioners, and some very real problems of definition, acceptance sampling has received attention and trial in the areas of public and internal auditing. Estimation techniques have proven useful and effective in the settlement of inter-line revenues among the air lines, and quality-control charts and methods have been applied successfully to clerical and internal audit procedures. All these situations indicate the

likelihood of success in further uses of interdisciplinary procedures.⁹

ESTIMATION

However much development there has been of statistical sampling uses for accounting measurement and control, the estimation phases of accounting are sufficiently numerous to raise some question as to whether accounting is, after all, a "census operation" in more than a limited sense. It is true that many explicit transactions are treated essentially as census data, but the problem of estimation is certainly quite typical of accounting procedures. The shrinkage in receivables through credit losses or via cash discounts is an essential part of financial reporting, as is the estimation of depreciation and depletion, to cite only obvious items. But the estimation of inventory loss through shrinkage, spoilage, or theft is commonplace procedure in retail accounting control, as well as in manufacturing materials inventories. The subject of estimated costs is certainly closely allied to, if not actually involved in, the establishment of standard costs—commonly encountered in manufacturing practice.

Indeed, every cost allocation represents a problem in cost estimation—perhaps not solved or even solvable in more than an approximate sense. The use of "normal" costing rates, intended to level unit cost fluctuations arising from mixtures of fixed and variable costs, seasonal variations over the year, and sporadic outlays for such things as machinery repairs, is a pattern of statistical estimation and analysis in all its dimensions. And even the enterprise-oriented and conventional financial statements are, in a generalized context, varieties of "samples." Data supplied in these reports are expected to be useful in formulating the decisions of investors and other outsiders as to the future prospects of the firm. The real problem is, of course, how to

interpret these data. Each set of reports is really a "sample" drawn from the overall past and future activities related to the firm—a non-random sample from an unknowable universe, however precisely its attributes may be stated. The basic problem in using accounting data for investment decisions is a problem of inference, a kind of inference about which we have but few theorems and those not very conclusively established.

SAMPLES, INFERENCE, AND PROBABILITIES

At the frontiers of statistical method, there are problems that show the importance of tests and interpretations related to subjective probabilities.¹⁰ Granted there has not as yet been much direct application of mathematical and probabilist theory to such problems, it seems reasonable that flexible budgets, standard costs, sales quotas and forecasts, and similar items might be viewed in terms of probable variations and ranges of expectation. Such an approach would offer better bases for drawing conclusions from observed performance.

This last point serves to bring out some other questions for accountants to answer. If variances from standard cost are supposed to indicate deviations from expected performance for the guidance of managerial corrective effort, ought we to leave them reported as mere aggregates? Individual "overs and unders" that make up the net total ought not to be offset; they ought to

⁹ L. L. Vance, "Developments in Statistical Sampling for Accountants," *THE ACCOUNTING REVIEW*, XXXV, No. 1, p. 19-28. R. M. Trueblood and W. W. Cooper, *THE ACCOUNTING REVIEW*, XXX No. 2, pp. 221-229; R. M. Trueblood and R. M. Cyert, *Sampling Techniques in Accounting* (New York: Prentice Hall, 1957); M. Backer and Paul Fertig, "Statistical Sampling and the Accounting Curriculum," *THE ACCOUNTING REVIEW*, XXXIII, No. 3, 1958, pp. 415-418; R. H. Gregory, "Frequency and Importance of Errors in Invoices Research," *Accounting Research*, III (1952), 4, pp. 332-9.

¹⁰ Robert Schlaifer, *Probability and Statistics for Business Decisions* (New York, McGraw-Hill, 1960).

be separated into those that do, and those which do not warrant managerial concern. We need to know how much variation is acceptable and *when* corrective action is necessary; merely to tabulate weekly or monthly totals simply evades the managerial issue. Sampling methods and "quality control" techniques may be applied to standard cost accounting with telling effect.¹¹

Is it necessary to operate a day-to-day "complete tabulation" cost system to establish the cost of processes or operations? Is the added accuracy (if it really exists) worth the cost of delay in obtaining unit cost data for pricing, order-acceptance, or process-variation decisions? Would not a sampling approach to product-costs yield results that would be at least comparable in usefulness but obtained at lower clerical cost? Or could existing clerical personnel and equipment be better utilized in determining (via sampling techniques) the details of costs related to different sizes, styles, and other variants of product lines, instead of leaving sizable cost differences dead and buried under the headstone of "product-mix?" There are many situations in which the accountant could apply, for managerial information purposes, the precept that "it is not necessary to drink an entire ocean, to observe that the water is salty!"

• INTERPRETATION

A last area of distinction to be considered here between accounting and statistics is the amount of attention paid to observation, recording, and summarization, on the one hand, and interpretation, on the other. A few accountants still insist their discipline is merely a device for putting down, and summing up, financial data (a sort of glorified adding machine, with subordinated registers and colored printing tapes) to establish subtotals to be placed in conventional statement forms.

This kind of accounting would report exactly what happened, neither more nor less! From this position, an accountant could conscientiously subscribe to the statement that "knowledge of the ideals and limitations of statistics should make accountants even more alert to their overall duty of disclosing factual truth, not only dependably, but understandably as well." But the issue of what is "factual" truth, and what constitutes understandable information is essential and basic.

One of the common fallacies in business and elsewhere is the notion of "single-valued" truth. The idea that there is some one figure to be found, some single answer to be established, overlooks that facts are not real in themselves; facts are interpretations of data with respect to experience. Data by themselves lack meaning, unless they are put into relation with other things and conditions to which they are relevant. Interpretation is not extraneous to quantitative method, but is an essential part of it. The accountant who concentrates on "fact" is likely to miss his real opportunity of service; he ought to make his data understood in the broader sense, which is to make it useful and relevant for given purposes.¹² But consider a statement concerning income and the accounting-statistical relationship:

"... the correlation of income over time with measures of output—analyses frequently made by statisticians and economists—may be meaningless, unless defects and uncertainties in net income figures are removed."¹³

In context, this statement is intended to

¹¹ Edwin Gaynor, "Use of Control Charts in Cost Control" N.A.A. Bulletin, June, 1954, pp. 1300-1308; Carl Noble, "Calculating Control-Limits for Cost Control" *loc. cit.*, pp. 1309-1317.

¹² This point was made, with respect to cost data, by J. M. Clark, in *Economics of Overhead Costs* (Chicago, University of Chicago Press, 1924) and elaborated in J. J. W. Neuner, *Cost Accounting* (Chicago, Business Publications, 1938), Chap. 29. The multiple-cost concept has since been expressed and explained in various places.

¹³ Robert G. Cox in Frank Pierson, *op. cit.*, p. 369.

stress the need for understanding concepts and principles rather than mastering techniques; with this, I have no quarrel whatever. But the statement reflects a desire to obtain income figures that are consistent, dependable, or without defects. It overlooks the fact that income, like other concepts in business, is a tenuous and uncertain notion—not only because of measurement difficulties but because of the variations in the aims and uses it may be called upon to serve.¹⁴

Terms like "output," "efficiency," and "gain," are seldom so sharply conceived as to fit manifold applications; indeed, they are often so vaguely expressed as to fit *no* purpose properly. General purpose concepts are likely to be just that, expressed in terms so "generally useful" as to be entirely inadequate for any specific problem.

When information can be used for various purposes, and these purposes are sufficiently clear to be recognized (as is typically the case in managerial measurements), the tabulations and reports are not properly done unless they are related to and interpreted for the specified purposes and problems. Just as the interpretive and projective aspects of statistical method make it a powerful tool for particular purposes, the interpretive and projective aspects of accounting for management are important ingredients in its overall effectiveness. Accounting data need interpretation to be useful; the data should be collected and analyzed with this end in view.

On the other hand, the statistician must guard against misuse of data; information gathered to serve one objective cannot be forced into a mold to suit any other purpose that may appear. The statistician has a responsibility to use accounting data with due regard for its specific character and content. On this score, it is not very productive to berate accounting data, complaining they are unsuited to the par-

ticular uses and problems in which the statistician may be interested. Some problems are of such a nature that joint effort, cooperation, and professional team-work may be basic to any kind of useful result. Even for data in which there may be a common interest or a common application, two or more viewpoints may complement or extend their individual usefulness by sharing their ideas and their tools.

A case in point here is, perhaps, the kind of analysis applied to problems of cost-behavior.¹⁵ The economist, the sales manager, and the engineer may each have some specific interest in this, with respect to their individual sphere of action. The use of statistical tools alone can give us some overall (enterprise) patterns of regression of cost on output, useful for economic analysis of the firm's pricing and output problems. But the really important relationship to the sales manager is how the individual cost-items relate to specific product style, size, or other sub-classifications. The problem may appear different again to the engineer concerned with questions of optimum lot size, factors which determine labor efficiency, and the relative costs of using different equipment in the routing and scheduling of production. All these questions cannot be solved at the same time by the same computations. The problem and purpose have distinct effect on the method to be used.

The ways in which such problems can

¹⁴ Canning (*op. cit.*) saw this, and dealt with it by describing the accountant's calculations without prejudice, but with the clear reservation that accounting income, economic income, and other related ideas were not and could not be the same thing. More recently, the nature of the concept of income has been examined by Sidney Alexander in *Five Monographs on Business Income* (New York: American Institute Publishing Co., 1950) pp. 1-95.

¹⁵ See, for instance, J. Johnston, *Statistical Cost Analysis* (New York: McGraw-Hill, 1960, pp. 136-19; Douglas Vickers, "On the Economics of Break-even" *THE ACCOUNTING REVIEW*, XXXV, No. 3 (1960), pp. 405-12; Rolfe Wyer, "Learning Curve Helps Figure Profits, Control Costs" *N.A.A. Bulletin*, December, 1953, pp. 490-502.

be attacked may depend to some extent on what kind of data are available. We still have much to learn about making various combinations of data available for particular purposes. But we could, at least, try to avoid the use of "single-handled" approaches to problems that are not the same, even though they appear similar.

CONCLUSION

This paper has attempted to show that some of the differences between statistics and accounting are not so sharp as they

might seem; that other such differences actually indicate a need for combination rather than separation of methods and viewpoints. Whether or not an accountant (or a statistician) regards his field as separate is largely a question of attitude. There are problems of importance on which both techniques should be used together. Certainly, each specialist should appreciate and learn to use the tools of the other, for the combination of techniques will give better answers to the problem of providing useful decision-data than can be had by the use of either one alone.

THE PERIOD COST CONCEPT FOR INCOME MEASUREMENT—CAN IT BE DEFENDED?

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IN RECENT years, many accountants in attempting to supply more useful financial data to management for decision making purposes have found a period cost concept most useful. The period cost concept divides cost data into two broad categories: (1) "Period" costs which are those costs related to time, i.e., those costs which expire with the passage of time rather than with the volume of business activity, and (2) "product" costs which include those costs which relate to the product being produced, i.e., those costs which are directly affected by the volume of business activity.

The utility of the period cost concept for managerial decision-making has logically led many people to ask themselves: Is the period cost concept appropriate for income measurement?

Under the period cost concept as it relates to income measurement only variable manufacturing costs are considered inventoriable (product costs) while fixed manufacturing costs as well as selling and administrative costs are period costs.

In general the accounting profession does not accept for income measurement purposes the treatment of fixed manufacturing costs as period costs. Conversely the accounting profession has accepted for many years a period cost approach to the handling of selling and administrative costs. However, there is an increasing tendency on the part of some accountants to advocate the acceptance of the period cost approach to income measurement for manufacturing costs.

In this paper the authors will show that

the period cost concept is not appropriate for purposes of income measurement. To do this it will be necessary to reconsider the process of income measurement. In so doing, the cost categories relevant to income measurement will be developed and will be shown to be:

- (1) costs of unused service potentials,
- (2) costs of used service potentials related to future income transactions,
- (3) costs of used service potentials related to current income transactions, and
- (4) costs of wasted service potentials.

Of the four cost categories, only the fourth, costs of wasted service potentials, represent true period costs. Even though wastes could be considered period costs, it is not the intention of this paper to designate which of the enterprise costs are period and product costs. It is the intention of this paper to show that categorizations of cost such as period costs vs. product costs are not relevant to the process of income measurement.

Reconsideration of Income Measurement

When is income earned? Is it earned only at one point in time, that is the point of sale as is implied in current income measurement practice, or is income earned over time, that is during the entire process of production and sale?

Even a modicum of reflection should be enough to make one realize that income is earned as utility and thus values are added to the factors of production. Bringing the factors of production together adds

value to the factors of production through time and place utility. Combining the factors of production adds value to the factors of production as form utility. Delivery to the customer also adds value to the factors of production through time and place utility. The addition of utility throughout the process of production and sale is in reality a "value added" approach to the measurement of income.

From another point of view, one can say that income is earned by the totality of the business operation, i.e., all the necessary enterprise activities contribute to the final earning of a business profit or loss. The entire business efforts, from procurement of the raw materials through the production and sale of the finished product, are essential to business operation.

In accordance with the "value added" concept, income would be measured in terms of the values which are added to factor costs as the production and selling activities of a business proceed from the acquisition of the factors of production through to the sale of the end product. In terms of matching, income measurement is just a process of comparing the total of factor costs plus value added to date with factor costs and value added at the beginning of the period in order to determine the difference which is income and of course the amount of value added to the factors of production during the period.

Under the value added concept income is considered earned when and to the extent that utility is added to the factors of production. In a company that sells all of its production for a period during the period of production and also uses all of its input factors there is no difficulty in measuring income via the value added concept since there would be no inventory of productive factors to which time, place, and form utility would have to be added. In these circumstances income would be measured

very simply by comparing sales with the costs of obtaining sales.

In a company where inventories are present, there is the problem of inventory valuation. The inventories for which a value has to be determined are raw materials, work-in-process, and finished goods. In keeping with the value added concept, the basis of valuation for these three classes of inventory would be as follows:

<i>Type of Inventory</i>	<i>Basis of Valuation</i>
Raw Materials	Cost ¹ plus time and place utility added since purchase.
Work-In-Process	Cost ¹ plus time and place utility added since purchase plus form utility proportionate to stage of completion.
Finished Goods	Cost ¹ plus time and place utility added since purchase plus form utility.

Stated in another way, one which associates the valuation of trade receivables and inventories, asset valuation will be as follows:

<i>Type of Asset</i>	<i>Basis of Valuation</i>
Trade Receivables	Sales price
Finished Goods	Sales price less costs of disposition and utility acquired through sale and delivery.
Work-In-Process	Sales price less costs of disposition, form utility related to incomplete portion, and utility acquired through sale and delivery.
Raw Materials	Sales price less costs of disposition, costs of production, and utility acquired through production, sale, and delivery.

Close scrutiny of the above should bring one very quickly to the conclusion that inventory valuation is based on cost plus value added to date. In addition, income earned during a period would be considered equivalent to the value added to productive factors during the period.

¹ Cost includes all costs of input factors. Raw material cost includes the costs of raw materials. Work-in-process and finished goods includes raw material costs as well as applicable labor and overhead costs. Thus utility as used here is a net concept, i.e., it includes the net value added to the factors of production during the operating cycle.

Current Practice and The Value Added Concept

On the surface, the value added concept might appear quite unrelated to current income measurement practice. This is not true. Generally accepted accounting practice supports a matching process for income measurement whereby the cost of obtaining a certain amount of revenue is deducted from that revenue. The value added concept involves the same type of matching process. The only difference between current practice and the value added concept relates to the point at which income is considered earned. Under the value added concept, income is considered earned as utility is added to the factors of production. Under current practice, income is considered earned at the point of sale.

The basic difference between the value added concept and current practice, then, is a matter of timing. Current practice delays the recognition of income until such time as it is objectively determinable. This delay can be justified on the basis of difficulties involved in the measurement of utility increments and the value that the public would attribute to the utility increments. The value added concept also seems subject to the criticism that what is measured is *the amount thought to be earned* rather than *the amount actually earned* as determined by the objective values placed on merchandise in the market place. Admittedly, current practice is a bit late in the recognition of income earned, but this seems to be justifiable on the basis of the objectivity attained.

Under the value added concept there would be only two categories of assets, (1) cash-type assets, and (2) costs of unused service potential related to unearned income. The costs of unused service potential are those costs related to productive factors not as yet utilized in the process of production. Cash-type assets would be

cash, receivables, and those inventories to which some form of utility had been added. The cash-type assets would of necessity include raw materials, work-in-process, and finished goods inventory since the difference between these inventories and cash is merely the addition of that portion of form, time, and place utility related to the remainder of the total process of production and sale.

If one desires to delay the recognition of income in order to obtain objectivity, he must also delay the recognition (in the income statement) of all costs related to the delayed income. This is as it should be because all costs are incurred for the same basic reason, i.e., the anticipated use of the services acquired in the production of income. Once the service potential of costs are used up in the production of income, such costs must be related to the income produced. If the recognition of income is delayed, the recognition of costs related to that income must be delayed.

The current practice of delaying income logically leads to a threefold categorization of assets; 1) cash-type assets, 2) costs of unused service potential related to unearned income, and 3) costs of used service potential related to earned but unrecognized income. Cash-type assets under current practice would therefore not include raw materials, work-in-process, and finished goods inventories. The delay of income recognition under current practice necessitates a third category of assets which consists of raw materials, work-in-process, and finished goods inventory. This third category relates to income earned but not yet recognized and would include the factor costs which are delayed until revenue is recognized. These "delayed costs" should naturally include all factor costs related to the "delayed revenue."

It should be pointed out that these "delayed costs" have no relationship to future benefit or utility. Quite to the

contrary, these "delayed costs" are related to the entire process of production and sale and represent the costs of form, time, and place utility which have been used up in the process of acquiring revenue, the recognition of which is being delayed. In other words, these "delayed costs" are related to earnings, the recognition of which is delayed, and not to some future benefit or utility.

Those who claim that only the variable costs of manufacturing should be inventoried on the basis that only variable costs are beneficial to the firm in terms of reducing future cost outlays² misunderstand the very nature of income measurement when the recognition of income is delayed. Future benefits have nothing to do with the valuation of inventories. Inventories are simply an expression of all costs used up in the process of acquiring revenue which has not yet been recognized.

Period Costs vs. Product Costs

In view of the fact that inventories represent delayed costs, the period vs. product (fixed vs. variable) cost distinctions become irrelevant for income measurement. All costs incurred by the firm must be considered in the light of the purpose for which they were incurred, i.e., expected service potential. In the process of production the service potentials are used up. Casual reflection should indicate that the service potential used up relates to all possible cost categories. For example, at least part of fixed (period) and variable (product) costs are used up in the process of production. These costs have a service potential to render and when that service potential is used up, the factor costs related to the used up service potential must be delayed if the income related to the used up costs is delayed.

If one were to say that the used up fixed manufacturing costs are not to be delayed he would in effect be saying that

there was no service potential inherent in the fixed production cost factors acquired. This, of course, would be like saying that the acquisition of fixed costs factors is an unwise and nonessential spending decision. Fixed costs are obviously as necessary to operations as any other costs. They are essential to the production process; therefore, when they are consumed they must be considered a part of the cost-revenue matching process inherent in income measurement. If the recognition of revenue is delayed, all costs (fixed or variable) associated with the acquisition of that revenue must be delayed in the form of inventory.

It should be noted that from the income measurement point of view there is no real distinction between manufacturing, selling, and administrative costs. If selling and administrative costs incurred relate to revenue which has been delayed, the appropriate selling and administrative costs should be delayed. In practice, selling and administrative costs are generally not delayed because of accounting conventions to the contrary, which are based on the difficulty of measuring deferred portions, and an expediency which says that if we make the same error at both ends of the year no material error would result in the income figure.

In addition to the classification of manufacturing costs into period and product cost groupings, there are many other ways in which manufacturing costs can be classified. For example, controllable and non-controllable costs, avoidable and unavoidable costs, etc. In any case, if one assumes that the decision to acquire these cost factors is reasonable and proper, one

² American Accounting Association, Accounting and Reporting Standards For Corporate Financial Statements and Preceding Statements and Supplements, 1957, p. 10; Raymond P. Marple, "Try This on Your Class, Professor," *THE ACCOUNTING REVIEW*, July 1956, p. 497; Charles T. Horngren and George H. Sorter, "Direct Costing For External Reporting," *THE ACCOUNTING REVIEW*, January 1961, p. 84.

must come to the conclusion that such costs have service potential and when that service potential is used up it must be matched against the revenue it produced. If the recognition of revenue is delayed, then the used up service potential must be delayed in the form of inventory.

This is not to deny the usefulness of the above cost categories for purposes other than income measurement; such categories are not relevant for income measurement, however. The only categories which are relevant are:

- (1) costs of unused service potentials,
- (2) costs of used service potentials related to future income transactions,
- (3) costs of used service potential related to current income transactions, and
- (4) costs of wasted service potentials.

Categories (1) and (2) are balance sheet items while categories (3) and (4) are income statement items. All these cost categories relate to the service potentials inherent in the costs at the time of their acquisition. If the service potential still exists (category 1), the cost must be treated as an asset. If the service potential

has been used in the production of income the recognition of which is delayed, the cost (category 2) must be delayed in the form of an asset. If the service potential has been used in the production of current period income, the cost (category 3) must be treated as an expense in the income statement. If the service potential has been wasted, i.e., it no longer exists and has not been used to produce income, the cost (category 4) must be treated as a loss in the income statement.

Costs in category (4) are truly the only kind of period costs for they contribute to no income and thus they must be treated as a loss of the period in which the service potential is wasted. All other costs must be related to the income they help to produce. Whenever that income is recognized in the income statement the cost of producing it must also be recognized in the income statement. When the recognition of the income is delayed any costs related to the delayed income must be held back (delayed) in the balance sheet until the future period when the income is recognized. If costs are not treated as outlined in the above statements income cannot be properly measured.

PRICE LEVEL CHANGES AND FINANCIAL STATEMENTS AT THE THRESHOLD OF THE NEW FRONTIER

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IN HIS article entitled "A Technique to Adjust Financial Statement Data for Changing Price Levels," appearing in the October, 1960 issue of *THE ACCOUNTING REVIEW*, Mr. Richard A. Ridilla most flatteringly attributes to my July, 1958 article the inspiration for his views and treatment of the problem of income determination during periods of changing price levels. In brief, both articles seek to accomplish a determination of annual income through procedures calling for the adjustment of items on the balance sheet to reflect changes in price levels. Thus we both seek to make of the balance sheet a dynamic statement, instead of leaving it in its present vestigial state.

There is, however, a critical difference between Mr. Ridilla's application of this idea and mine! I would pass into current economic income all improvement occurring during the fiscal period, regardless of whether such improvement was realized through the revenue cycle. He would retain the realization concept but would, through the balance sheet approach, effect a charge to income for depreciation of fixed assets based on their current replacement value and would, as a corollary, effect a credit to income for any long-term indebtedness redeemed during the year. (There is included as an appendix hereto several illustrations of this critical difference between us.)

I believe it is not an oversimplification to say Mr. Ridilla is willing to depart from the historical dollar standard in accountancy but persists in holding to the realiza-

tion concept. This is best evidenced by his shock at the fact that my treatment of the data produces an income result in excess of that reported by use of the traditional concepts during periods of increased price levels. He states: "It stands to reason that income adjusted for rising prices (or declining purchasing power) will *always* be less than the historical cost-based reported net income . . ." (emphasis in original).

His emphatic and unequivocal conclusion is warranted, I submit, only by the presumption of the validity and applicability of the realization concept and not by any basic rule of reason. This holding fast to the realization concept while recognizing the manifest need for a change 'as if to lose this concept would be the equivalent of a loss of innocence' reminds me of Roger Bacon's lament: "If I had my way I should burn all the books of Aristotle, for the study of them can only lead to a loss of time, produce error, and increase ignorance . . ."

In the same classic vein, and also demonstrating the effect which only a partial accommodation of an apparent incongruity can have, the following commentary by Arthur Koestler, in *The Sleepwalkers*, is significant: "Accordingly, the task of the mathematicians was now (after Plato) to design a system which would reduce the apparent irregularities in the motions of the planets to regular motions in perfectly regular circles. This task kept them busy for the next two thousand years. With his poetic and innocent demand, Plato laid a curse on astronomy, whose effects were to

last till the beginning of the seventeenth century.... There is perhaps no other example in the history of thought of such dogged, obsessional persistence in error."

Each of us knows of the numerous aberrations in our financial reporting which are created by and condoned in the name of the realization concept. A few examples, not necessarily related to mere price-level changes, are: motionpicture producers which dispose of significant portions of their film libraries (theretofore almost fully depreciated) for a very valuable consideration; corporations which accumulate very substantial equities in non-consolidated foreign subsidiaries, or in so-called associated companies (i.e., 50% jointly owned), which equities are not being adequately reflected in financial statements prepared consistent with generally accepted accounting principles; the discretion vested in management to manipulate the reported annual income through the device of replacing or not replacing reductions in the LIFO inventory pool; the innumerable situations in which publicly owned shares are traded appreciably below the net realizable values of the underlying properties owned by the entity, only because the shareholders did not know of such underlying values (nor could they find out from the financial statements prepared on a basis consistent with generally accepted accounting principles).

So it is that as we approach The New Frontier it may be well for us to reappraise all of our accounting concepts to determine whether they are in fact responsive to the present requirements of our society. That the problem of income determination during periods of changing price levels transcends the mere bounds of accounting theory and pervades our entire social structure is evidenced by an article entitled "Economic Depreciation in Income Taxation and in Accounting," by Mr. Paul Grady, appearing in *The Journal of Accountancy*, April,

1959, wherein he asks: "In the light of... inflation... should not changes be made in the depreciation of productive facilities both in regard to federal income taxation and in regard to accounting?" He then answers this rhetorical question affirmatively, thus: "If we continue to ignore economic depreciation in income taxation and in accounting, it is my view that we will jeopardize the needed modernization of productive facilities—the essential arsenal in the economic battle with the communists. We have the word of the State Department that this economic battle is our greatest danger."

The urgency of the issue is demonstrated by the fact that both major parties, during the recent Presidential campaign, indicated the subject required study; also, the Accounting Research Division of the American Institute of Certified Public Accountants has determined to give it top priority.

What makes it so vitally urgent? Surely, it is not because the amount as determined by the independent accountants is of such ultimate importance. Management is entirely capable of adjusting prices, dividend policy, and cash flows to accommodate these changing price levels.

The problem is not one of an inability on the part of management to obtain the funds required for capital goods replacement and/or expansion. In my 1958 article I sought to demonstrate this point by reference to the Federal Reserve System's flow-of-funds data for the thirteen-year period 1941 through 1953. More recently *Forbes Magazine* (December 14, 1959) stated the following:

"You hear much about the 'demand for shares' but most commentators seldom mention the 'supply of shares,' except when the market is going down. Actually, supply always is just as important as demand because you can't make a price unless someone sells to someone who buys. Large blocks of good stocks have been taken out of the market by institutions, pension funds, mutual

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funds and capital-gains-tax conscious individuals who do not sell. Corporations have been needing less new money from the sale of new stock issues because of larger amounts of self-generated cash, obtained through retained earnings and larger depreciation . . .

"Aside from utilities, hardly a single really big corporation has financed through the sale of additional shares in 1959. Most of the new stock issues have been comparatively small, and not by leading companies."

A similar position is set forth and ably demonstrated, by A. A. Berle, Jr., in his *Power Without Property*.

To the argument so eloquently advanced by Mr. Grady that we need the added incentive for our corporate enterprise in order to encourage expansion of productive capacity and increase in gross national product, thereby permitting us to maintain our competitive advantage with conflicting ideologies, the response might well be the following catechism.

1. Shall the nature and extent of this expansion (thus subsidized by our tax system) be left to the unfettered discretion of corporate management, or should it be, in some measure at least, subject to orientation by government representing the interests of all segments of our society?

2. Is there really a vital need for this general expansion of capital facilities at a time when steel production is at a rate far less than 50% of current capacity (and where, as of this writing, this condition has proven to be so embarrassing the industry has determined to drop this economic barometer)?

3. Should there be this further subsidization of replacement through special depreciation incentives where the result of such replacement is to generate further unemployment?

4. Should we, through this further subsidization, help to make competitors submarginal, where such submarginality stems from the competitors' more extensive use of manpower instead of the automation

generally inherent in the replacement facilities?

5. In sum, is there now such a compelling need for expanded productive facilities as to require government to offer special tax subsidies for the replacement of facilities? Stated otherwise, should we not first determine for what it is we are producing and then determine how to utilize fully our present capital facilities and human resources so all may be usefully and gainfully employed in the creation and distribution of our present and potential wealth?

Nor can these questions be resolved by accounting theory alone, although we accountants as members of a profession should devote our efforts and abilities towards the resolution thereof. Instead, they require an understanding of the nexus of accounting theory, tax concepts, economic theory, and social philosophy generally, to permit an approach to their solution. Each of us must help in this process by calling on all his faculties and disciplines, traditions and heritage, and then putting forth his answer both as a member of a learned profession and as a citizen. To ignore the obligations to society generally (in addition to our clients) is, in my view, negating a fundamental standard for professional status.

For myself, my 1958 article indicated that the very entities for whose benefit the changed depreciation concepts are most generally urged (e.g., those corporations of long duration which have substantial investments in plant and equipment acquired long ago at appreciably lower price levels) are the very ones which least require this subsidization through a tax reduction resultant from additional depreciation changes. Since then the evils inherent in the frenetic drive towards automation have become the subject of extensive and critical comment. Thus, we have yet to measure and evaluate the contribution of

this "progress" to a pernicious unemployment, by which I mean not only people put out of jobs, but persons forced to accept early retirement with a pension, perhaps, but also with a despairingly useless "Golden Age" made longer by medical science, as well as young adults unable to obtain employment and thereby driven to delinquency or to further education for which they are not equipped and which thereby fulfills a mere custodial function.

The impact of all this "progress" on the intellect of man is similarly yet to be ascertained. We who are now teaching the business leaders of the 1980s should understand and appraise these developments to determine whether the learning we are now imparting will permit them even to enter the pyramidal structure leading to business leadership. We who are now engaged in the public practice of accountancy are aware of the extent to which major administrative and executive decisions are being relegated to automated procedures; we are confronted with the processes leading to a society where (stated as an Orwellian prophecy) the principal function of man will be to produce more machines when the machines tell him they want to be replaced.

I recognize that I have digressed, but presumed useful digression is essential to the frame of reference set out above, i.e., that the problems of price level changes cannot be resolved in a vacuum but must, instead, be considered in their economic, social, and philosophic context. These digressions demonstrate the stream of deliberation required for the evaluation of the problem, its implications and possible solution.

With the foregoing as my analysis of the problem and as a statement of my values, permit me to move, possibly presumptuously, into a consideration of a solution to this critical dilemma. Thus I urge:

First, within the framework of our

democratic institutions, our government should identify the areas in which added productive facilities would be necessary for the fulfillment of national goals. Then, through some accelerated or special amortization procedure (possibly consistent with that prevailing during the World War II emergency and thereafter) it should subsidize the new plant and facilities in these areas.

Second, in those instances where existing plant facilities are uneconomic because of the high labor cost implicit in their use, but where it is nevertheless deemed to be in the public interest to maintain these facilities (e.g., to maintain a high level of useful employment) a supplemental "amortization" factor should be allowed to help eliminate the submarginality of such plant or facility. This is analogous with the underlying principles of our farm and protective tariff programs.

Third, to the extent additional tax revenues are deemed necessary, after existing loopholes, and inequities, and other patent tax leaks and abuses have been eliminated, consideration should be given to the taxing of economic improvement, even if unrealized, consistent with the balance sheet orientation suggested in my 1958 article.

So it is that my reflecting on the problem of income accounting during periods of changing price levels has necessitated going beyond the mere mechanics of accommodating the irritant. I consider just this type of far-reaching analysis, even if diametrically opposed answers to mine are reached, to be absolutely essential. Only in this way can we help to meet the challenge laid down for us by the Report of the President's Commission on National Goals which concludes with the standard:

"Man has never been an island unto himself. The shores of his concern have expanded from his neighborhood to his nation, and from his nation

to his world. Free men have always known the necessity for responsibility. A basic goal for each American is to achieve a sense of responsibility as broad as his world-wide concerns and as compelling as the dangers and opportunities he confronts."

ILLUSTRATIONS AFFECTING INCOME DETERMINATION FOR THE YEAR 1959

Description	Data Per Books	Per Mr. Ridilla Conversion Factor	Amount	Per My Treatment Conversion Factor	Amount
1. Buildings, Acquired 1941:					
(a) Depreciated Cost 1/1/59	27,000	1.995 ¹	53,865	1.964 ²	53,028
(b) Depreciated Cost 12/31/59	25,000	1.995 ¹	49,875	1.995 ³	49,875
(c) Effect of Depreciation Taken on 1959 Income ("a" minus "b")	-2,000		-3,990 ⁴		-3,153 ⁵
2. Land, Acquired 1940:					
(a) Cost—1/1/59	15,000	2.095 ⁶	31,425	2.062 ⁷	30,930
(b) Cost—12/31/59	15,000	2.095 ⁶	31,425	2.095 ⁸	31,425
(c) Effect on 1959 Income ("a" minus "b")					+ 495 ⁹
3. Bonds Payable, Issued 1950 and Liquidated 1959:					
(a) Balance—1/1/59	20,000	1.221 ¹⁰	24,420	1.000 ¹¹	20,000
(b) Cash paid in liquidation	20,000		20,000		20,000
(c) Effect on 1959 Income ("a" minus "b")	-0—		+4,420 ¹²		-0— ¹¹

¹ Factor of 1.995 represents the relationship computed by Professor Ridilla between December 1959 price levels and those prevailing in 1941 (the year of the building's acquisition).

² This income charge is thus equal to the depreciation on a cost basis (\$2,000) multiplied by the conversion factor described at note (1).

³ Factor of 1.964 represents the relationship computed by me (based on data included in Mr. Ridilla's paper) between the 1958 price levels and those prevailing in 1941.

⁴ The charge to income in the amount of \$3,153 is equal to that computed by Mr. Ridilla (\$3,990) after subtracting therefrom the *economic improvement* which occurred during the year through the increase in the value of the buildings (\$837) caused by the change in price levels between 1958 and 1959.

⁵ Factor of 2.095 is the relationship between December 1959 price levels and those prevailing at the time of acquisition (1940) as computed by Mr. Ridilla.

⁶ Factor of 2.062 (also computed by me, based on Mr. Ridilla's data) shows the relationship existing between 1958 price levels and those existing at time of acquisition.

⁷ The income credit of \$495 also reflects the *economic improvement* of the entity by reason of the fact that the land is presumed to be worth more at the end of the year than at the beginning.

⁸ The 1.221 factor is used by Mr. Ridilla as representing the relationship existing between December 1959 price levels and those prevailing at the time of borrowing.

⁹ The income credit of \$4,420 is intended by Mr. Ridilla to show that there has been a realized saving through the retirement of \$24,420 of "converted debt" by the payment of \$20,000 in current dollars.

¹⁰ My computations assume book value of indebtedness is always the current value thereof, on the theory that a current dollar could always liquidate a dollar of indebtedness. To the extent a different condition prevails (e.g., a conversion privilege of some sort), appropriate consideration would be given thereto.

¹¹ In view of the observation at note (10) above, there would be no effect on current income through the incurrence or liquidation of indebtedness. Instead, income would be affected only by the properties acquired with the proceeds of such debt.

PRICE LEVEL ADJUSTMENTS TO FINANCIAL STATEMENTS: A REJOINDER

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Mellon National Bank and Trust Company

Introduction

IN THE ACCOUNTING REVIEW Mr. Briloff has attacked for the second time the idea of indicating the effect of inflation on business income. His first attempt, in the July 1958 issue, was aimed against early ideas primarily developed into techniques by Messrs. Jones and Mason. In his second try (in this issue), my article (presented in the October 1960 issue) is his point of reference. Therefore, through the courtesy of the Editor, and in order to shed more light on significant facets of this intractable price level controversy, I shall endeavor to reexamine Mr. Briloff's recommendations for changes in national policy.

As far as net income is concerned, Mr. Briloff embraces the unusual concept that all increase, realized or unrealized, in the monetary value of a firm's net assets over a period of time is income, and as such is taxable. To him, it matters not whether the increase in dollar value is the result of realization or conversion, or partly the result of a monetary unit that has declined in value. In the October, 1960, article (p. 651), I state that "It stands to reason that net income adjusted for rising prices (or declining purchasing power) will *always* be less than the historical cost-based reported net income, unless, of course, liabilities are larger and/or older than assets, which is highly unlikely." At that time, however, I did not anticipate Mr. Briloff's ingenuity in including as taxable income realized and unrealized gains caused by a cheapening of the dollar.

At the present time, U. S. businesses are taxed on realized gains which partly

reflect inflated dollars. To this current inequity, Mr. Briloff would add a tax on unrealized gains as well. As often quoted, J. R. Hicks, in his *Value and Capital*, in 1939, adeptly defined a man's income as "the maximum value which he can consume during a week, and still expect to be as well off at the end of the week as he was at the beginning."¹ As a comparison, A. J. Briloff, in 1961, would probably reason that a firm's taxable income is the maximum dollar difference between the firm's net assets at the beginning and the end of a period, including positive adjustments to assets for any unrealized gains, albeit a part of all such gains merely reflects a reduction in value of the dollar itself. Notice that this dollar-type income definition does not even slightly indicate satisfaction or consumable income.

In the United States the realization postulate has been a part of acceptable financial reporting at least since 1918, when the U. S. Supreme Court held there could be no gain (or taxable gain) without severance, or realization.² To levy a tax on an unrealized gain (in which the gain does not reflect a receipt of cash or its equivalent) is not an equitable procedure for several reasons:

1. A completed sale price can only be anticipated; an ultimate market price

* The author wishes to acknowledge his gratitude to Professor Stanley F. Jablonski for his assistance in the preparation of this paper. The opinions expressed here are solely those of the author and do not necessarily reflect views of Mellon National Bank and Trust Company.

¹ J. R. Hicks, *Value and Capital* (2nd Ed.; Oxford: Clarendon Press, 1946), p. 172.

² Eisner v. Macomber, 252 U. S. 189, 1 USTC para. 32.

may not be accurately forecast for many non-cash assets until a sale is consummated and title transferred.

2. Since taxes must be paid with realized dollars, a tax on unrealized gain would force capital goods sales and/or result in levying a higher tax on other realized income.
3. Unrealized gains, those not actually contributing to consumable income, may be attributable principally to general inflation.

To attempt to nullify the text of Mr. Briloff's entire article would be challenging, but this is not my purpose here. Consequently, the remainder of this article will consider only the weaknesses of his final recommendations and his adamant position against price level adjustments to financial statements.

I. The Special Amortization Dole

As his first recommendation for national policy, Mr. Briloff states: ". . . within the framework of our democratic institutions, our government should identify the areas where added productive facilities would be necessary for the fulfillment of our national goals. Then, through some accelerated or special amortization procedure (possibly consistent with that prevailing during the World War II emergency and thereafter) subsidize the new plant and facilities in these areas."¹⁴

Part of the error in the above proposal, and inherent in much of Mr. Briloff's thinking, is his misunderstanding of the dissimilarity between the pronouns "we" and "our," and the adjective "all," when compared to the noun "government." He keeps insisting that the government, with a few more policies, can represent the best interests of "all" American people. This is a very naive point of view. At the very best, the national goals of 180 million people are not identically weighted—or

even similar, for that matter.

Mr. Briloff implies that U. S. market mechanisms do not currently provide enough resource allocations to these certain "areas," and that we must give them special attention, i.e., reduce their taxes. As disclosed in personal correspondence, Mr. Briloff believes that a primary obstruction in this inadequate resource allocation is the paucity of competition in our economic system. In a personal letter he says, ". . . I prefer that the major orientation of our economic society be directed in the interests of the 180 millions and by them pursuant to the democratic process rather than by an oligarchy of the few."¹⁵ If this oligarchy is in effect real, is another federal dole from a few to a few the solution to it? I think not. If competitive forces are weak, a better correction appears to be to strengthen competition directly, and allow, as far as is reasonable, the economic desires of the 180 million to be reflected anonymously through the more competitive market. Then, the welfare of "all" will more equitably decide "our" national output.

II. The Supplemental Amortization Paradox

Mr. Briloff's second recommendation closely parallels his first when he says: ". . . in those instances where existing plant facilities are uneconomic because of the high labor cost implicit in their use, but where it is nevertheless deemed to be in the public interest to maintain these facilities (e.g., to maintain a high level of useful employment) a supplemental 'amortization' factor should be allowed to help eliminate the submarginality of such plant or facility. (This is analogous with the underlying principles of our farm and protective tariff programs.)"¹⁶

¹⁴ Abraham J. Briloff, "Price Level Changes and Financial Statements at the Threshold of the New Frontier," *THE ACCOUNTING REVIEW*, October, 1961.

¹⁵ Letter from Abraham J. Briloff, February 2, 1961.

¹⁶ Briloff, *THE ACCOUNTING REVIEW*, October, 1961.

This recommendation emphasizes two very serious problems. First, that extra amortization to firms which is designed to help "eliminate" the submarginality of plant or facility will not "eliminate" but "perpetuate" this submarginality. Mr. Briloff, himself, refers to two choice examples of this perpetuity: the farm and the protective tariff programs.

Second, but *most* important, is the unsound idea that extra amortization or depreciation deductions will provide funds to bail out an already unprofitable business enterprise. This incorrect concept is again expressed in Mr. Briloff's direct quotation from *Forbes Magazine*.

Depreciation does *not* directly generate cash or its equivalent. To explain best this firm position, the following simplified illustration is presented:

COMPANIES A, B, AND C			
Simplified Income Statements For the Year Ended			
December 31, 1960			
Company	A	B	C
Sales (for cash or collected receivables)	\$1,000	\$1,000	\$1,000
Cash-type expenses	1,000	900	700
Sales less cash expenses	\$ 0	\$ 100	\$ 300
Depreciation expense	200	200	200
Net profit or loss* (before tax)	\$ 200*	\$ 100*	\$ 100

Assume in this illustration that all three companies form a particularly desirable "area" or industry, Company A and Company B are submarginal, or less profitable than Company C. Since all three have the same cash sales and depreciation expense for 1960, all three should have a similar amount of self-generated cash, at least according to Mr. Briloff and *Forbes Magazine*. Let us see. Company A self-generated no cash during 1960; results would be identical if it were permitted any amount of depreciation by special legislation. Now Company B is somewhat more fortunate; it self-generated \$100 in cash, but depreciation charged for the year still amounted to

\$200. Company C, the leading firm, made use of the entire \$200 depreciation deduction and generated \$300 in cash (before taxes). To conserve cash for Company A, extra depreciation is not the answer; Company B would not directly benefit from extra depreciation; and even Company C would do so only to the extent of the decrease in taxes and taxable income.

Depreciation does not provide self-generated cash, as it is often misrepresented as doing. Successful sales (for cash or collectible receivables) of desirable goods and services at a price in excess of cash expenses provide a firm with self-generated cash. To go one more step, it must be said that in order for a firm to be profitable and generate new working funds, it must sell its goods or services at a price that will not only cover cash-type expenses but depreciation as well. Depreciation merely represents a conversion by the firm of a past expenditure on a capital asset into a more liquid asset. This intrafirm conversion of assets should not be mistaken as income, either economic or taxable.

Of course, the foundation of this brief illustration is a stable, not a declining, monetary unit!

III. A Tax on Economic "Improvement"

Mr. Briloff now concludes "... to the extent that additional tax revenues are deemed necessary (after existing loopholes, and inequities, and other patent tax leaks and abuses have been eliminated), consideration should be given to the taxing of economic improvement (even where unrealized) consistent with the balance sheet orientation suggested in my 1958 article."¹

This personal concept of "economic improvement" is fantastic. Based upon his text, Mr. Briloff would include as economic improvement (1) realized gains, (2) estimated unrealized gains, and (3) the de-

¹ Briloff, THE ACCOUNTING REVIEW, October, 1961.

preciation of the dollar included in both (1) and (2). The tax, since it would fall partly on unrealized gain, would necessitate either the constant conversion of capital assets where unrealized gains are supposed to have occurred, or, in effect, a higher rate on realized gain. The second outcome would more than likely account for many cases.

It is not uncommon knowledge that legislators try to disguise the incidence of mounting taxes. They already tax, in one way or another and at varying rates, nearly everything exclusive of the air itself. This proliferation of taxes and tax bases is not, as it first appears, the result of confused thinking. Legislators know that if all local, state, and federal taxes were stated at one rate against income, the rate would be very difficult to defend. But it is from income, individual income, that it is ultimately collected. A "buckshot" tax approach is considered less painful and defended as more equitable than one sharp blow. Also, "buckshot taxation" is less open and clear, and therefore, easier to conceal. An illustration of this facet is the incidence of our corporate tax. It is argued by some economists that since the tax is on corporate net income, it is not shifted to others but paid by the stockholders. However, assuming varying degrees of economic resistance and competition among management, employees, consumers, and stockholders, a different tax incidence may result. But the important fact is that someone (people) must pay the tax. Corporations do not pay taxes—people pay taxes. Corporate income taxes are paid by people out of their income, just as individual income taxes are paid by people.

Another more elusive but effective tax tool familiar to many tax legislators is inflation. By permitting national economic policy directly to foster inflation, and raise general price levels, federal tax revenues are automatically increased simply by

maintaining constant tax rates; prior borrowing costs are effectively reduced. Since corporate, excise, and estate and gift taxes combined now provide the federal government with nearly the same total tax receipts as the individual income tax,⁷ is it not reasonable to assume that as individuals (the people who pay all taxes) we pay an effective minimum federal rate on taxable income more in the neighborhood of 40 per cent than the often quoted 20 per cent? To this 40 per cent rate should be added state and local taxes as well.

According to his article, Mr. Briloff would now, on top of these already high rates, place a tax on all unrealized gain, disguising it as economic improvement. The "improvement" may be entirely the result of a decline in the value of our monetary unit (as is the case with those of my original illustrations to which Mr. Briloff referred).

Conclusion

In accordance with a discussion of income and price level adjustments designed to reflect more precisely business income during periods of inflation, several controversial factors, at odds with ideas promoted elsewhere in this issue by Mr. Briloff, have been discussed:

1. The abandonment of the accounting realization postulate by Mr. Briloff is unwise, since there must be a realization, or a severance-type transaction, before gross income (and thereby net income) can be accurately determined. Since 1918, the Supreme Court has upheld the realization postulate, thus recognizing the weaknesses inherent in the acknowledgment of unrealized gain as income.
2. Special depreciation privileges to

⁷ *Growth and Taxes*, A statement on National Policy by the Research and Policy Committee of the Committee for Economic Development, February, 1961, p. 5.

desirable but submarginal areas is unsound. Some "select" group of people must decide upon the favored few, thereby indirectly interfering with existent competitive forces and acting (as history indicates) only to perpetuate the submarginality. Depreciation, in itself, does not generate cash or working funds. Therefore, increased depreciation allowances to desirable but already unprofitable firms would not be effective.

3. *All* taxes are paid by people. And tax rates based on income (realized or

unrealized) are understated without consideration for the declining value of our monetary unit. I feel this understatement of tax rate is recognized by Mr. Briloff, but camouflaged by his misuse of the term "economic improvement."

If gross misconceptions such as those embraced by Mr. Briloff somehow become the law of the land, then for honesty's sake, let's not further confuse people by referring casually to the federal tax base as "economic improvement."

DEPRECIABLE ASSETS—TIMING OF EXPENSE RECOGNITION

HAROLD BIERMAN, JR.

Professor, Cornell University

IT is generally agreed that depreciation accounting attempts to allocate the cost of an asset to expense so that each year of the asset's useful life bears a reasonable portion of the expense of using the asset. It is the argument of this paper that the choice of the method of cost allocation should not be left to whim or chance, but rather should be the result of a logical theory of depreciation.¹

To implement the theory of depreciation being developed here it will be necessary to view the purchase of a long-lived asset as the acquisition of a series of revenue producing services rather than the purchase of a physical unit. Thus we shall be interested in the amount of cash proceeds to be earned in each period rather than the physical deterioration of the purchased asset.

Appraisal of Popular Methods of Depreciation Accounting

The appraisals which follow are by necessity brief. They assume the reader already has been exposed to the arguments about the relative merits of the different methods of depreciation accounting. The reason for including them here is to freshen the reader's mind, not to convince the reader that the statements are correct. To do so, would detract from the main function of this article, i.e., to suggest alternative methods of depreciation accounting.

The following table is based on a situation of special characteristics. The assumptions are as follows:

- a. The asset being depreciated has a

service life which is a function of time, not of activity.

- b. Revenues, maintenance charges, other costs, etc. are constant throughout the life of the asset.

If we relax the assumptions of constant revenue and maintenance charges, the accompanying table would change. Just how it would change would depend on the time shape of the curve of expected cash proceeds. In any event there is no reason for assuming that any of the above procedures would fill the general need for a method of depreciation accounting. By rigging special cases we can make any of the procedures seem reasonable, but they would still be special situations used to prove that the procedure at hand was reasonable.

Rate of Return Method of Depreciation Accounting

The problem is to decide how much of the cost of the asset will be charged to several periods so the entire cost may be allocated to the periods in which the asset is used productively. The solution suggested by this paper is that a period should not be charged with an arbitrary amount, but rather the proper depreciation charge is determined at the moment the decision

¹ The ideas for this paper developed out of criticisms by Richard Bower of an earlier paper published in the August 1958 issue of the *Controller*. Mr. Bower also brought to my attention an article by H. R. Anton, "Depreciation, Cost Allocation and Investment Decisions," *Accounting Research*, April 1956, pp. 117-131. The basic ideas in that paper are similar to mine, but there are significant differences especially in determining the depreciation cost of each period.

TABLE 1

<i>Method of Depreciation Accounting</i>	<i>Influence on Measurement of Income</i>	<i>Return on Investment</i>
Straight Line	Net income is the same for each year.	Increases as the asset ages.
Decreasing Charge (twice straight line, sum of the years' digits, etc.)	Net income increases as the asset ages.	Increases as the asset ages (even more than with the straight line method).
Increasing Charge-Compound Interest	Net income decreases as the asset ages.	Is constant if the interest rate used in computing depreciation is equal to the rate of return of the asset.
Increasing Charge-Annuity Method	Net operating income is constant for each year. Net income, after implicit interest revenue, decreases as the asset ages.	Increases as the asset ages. Is constant (this procedure is essentially the same as the compound interest procedure.)

to invest is made. At that time the cash proceeds of the future periods are discounted back to the present and compared to the cost of the asset. In a sense the cost of the asset consists of the cost of purchasing the proceeds of different periods. Thus the depreciation charge of the period will be related to the forecasted net cash proceeds which formed the basis of the decision to invest in the asset.

All methods of making investment decisions relate the flow of proceeds earned by the investment to the cost of the investment. The methods used have varying degrees of correctness and it is beyond the scope of this paper to appraise the many measures of investment worth. However, it will be assumed that the timing of the flow of proceeds into the firm should be taken into consideration by a discounting procedure. Since the firm making the investment must estimate future proceeds of each period in order to make the investment decision, it also knows the amount it is paying for the proceeds of each period.

Assume an investment cost \$24.87 and that for each of three years the asset is expected to earn cash proceeds of \$10 (the \$10 is equal to revenues less all incremental expenses other than depreciation of the

investment). At the end of three years the asset will have no value.

The straight line depreciation would be \$8.29 per year and the income for each year would be \$1.71 or a total income of \$5.13 for the three year period. The return on investment would increase as the book value of the investment decreased. This is not a satisfactory presentation of the financial events. The firm is purchasing a series of cash proceeds of \$10. The present value of the series is \$24.86 (assuming a cost of capital of 10% and the proceeds are earned at the end of each time period). The present value of the proceeds is equal to the cost of the investment; thus the 10% cost of capital is equal to the rate of return of the investment.

At the beginning of the first period the firm is willing to pay:

\$9.09 for the proceeds of the first year (\$10 \times .909).

8.26 for the proceeds of the second year (\$10 \times .826).

7.51 for the proceeds of the third year (\$10 \times .751).

The depreciation of the purchased asset will be \$9.09, \$8.26 and \$7.51 for each of three years. Note that whereas the com-

TABLE 2
COMPUTATION OF INTEREST COSTS AND REVENUES

1 Period	2 Basic Investment	3 Interest Year 1 10% (2×10%)	4 Investment plus Interest (2+3)	5 Interest Year 2 10% (4×10%)	6 Investment plus Interest (4+5)	7 Interest Year 3 10% (6×10%)
1	9.09	.91				
2	8.26	.83	9.09	.91		
3	7.51	.75	8.26	.83	9.09	.91
Interest Revenue		2.49		1.74		.91

pound interest method of depreciation has an increasing depreciation charge, the depreciation charge resulting from this procedure is decreasing.

If we stopped the accounting process here, the method of depreciation accounting would result in an increasing income and return on investment for the successive periods. To be complete the analysis must go beyond the computation of the depreciation charge. In a sense the proceeds to be earned in each of the three years are returns from individual independent investments, and it is necessary to compute the interest costs and revenues of the three investments.²

In year one the interest cost of the \$9.09 investment is \$.91, and the total interest revenue earned on the three investments is \$2.49. The interest costs of the \$8.26 and the \$7.51 investments will be matched with the revenues of periods two and three respectively. The results of these computa-

tions will be a summary of costs and proceeds given in Table 3.

This depreciation procedure accomplishes several objectives. The "income" figure of each period is undistorted. The zero income results because the investment earned a return of 10%, which is equal to the cost of capital. This zero income is consistent with certain economic theories of profit which require recognition of capital costs before recognizing profit.

The return on investment is 10% for each period if the net income amounts are used. Thus the system allows a measure of income and return on investment undistorted by the mere passage of time or the accident of the period being measured.

The reader is invited to try straight line, compound interest, annuity, or decreasing charge methods of depreciation accounting and compare the results. None of these

² Compare with Dixon, R. L., THE ACCOUNTING REVIEW, October, 1960, pp. 590-597.

TABLE 3
COMPUTATION OF NET INCOME AND RETURN ON INVESTMENT

Period	Cash Proceeds	Depreciation	Interest Costs	Interest Revenue	Net Income	Return on Investment
1	10.00	9.09	.91	2.49	2.49	.10 ^a
2	10.00	8.26	1.74	1.74	1.74	.10 ^a
3	10.00	7.51	2.49	.91	.91	.10 ^a
		24.86	5.14	5.14	5.14	

^a The \$24.86 is the initial outlay. $2.49/24.86 = .10$.

^b $(8.26 + .83) + (7.51 + .75) = 17.35$. $1.74/17.35 = .10$.

^c $7.51 + .75 + .83 = 9.09$. $.91/9.09 = .10$.

methods can take a general situation and give undistorted measures of income and return on investment.

The illustration has shown what the procedure will do if the actual results are the same as those forecasted at the time of acquisition. Let us assume that \$9 of cash proceeds were earned in the first period instead of \$10. The income after interest costs will be a deficit of \$1 and the earnings after interest revenue will be a profit of \$1.49 instead of the expected \$2.49. The return on investment will change from the expected 10% to an actual return of 6%. This is important control information indicating the need for managerial action.

Cost of Capital Not Equal to the Rate of Return

Up to this point we have assumed the cost of capital was equal to the rate of return of the investment. Let us relax that assumption and assume the same situation as above, but the cost of capital is now 6%. Since the cost of capital differs from the rate of return of the investment the analysis is more complicated. Using the cost of capital as the discount rate, the present value of the expected cash flows may be greater than the cost of the investment. If they were less than the investment cost, the investment would not be worth undertaking.

A possible solution would be to ignore the cost of capital and use the same procedure as used when the cost of capital and rate of return were equal. This has the

virtue of simplicity, but it is not completely logical to say that \$10 a period hence is worth \$9.09 now (using a 10% rate of interest), when we know that the present value of \$10 is \$9.43 (using a 6% rate of interest).

The solution suggested here will be to compute the present value of the cash flows using the cost of capital. Since the cost of capital is less than the rate of return, the present value of the cash flows will be greater than the cost of investment. This could result in an increase in recorded value of the investment, the increase in the investment account being balanced by an increase in an account called "Unrealized Profit." For purposes of conservatism this latter account should be subtracted from the investment account.

The present value of the cash flows in the example is \$26.73 and, using a discount rate of 6%, the unrealized profit is \$1.86 (subtracting the cost of the investment \$24.87 from the present value of the cash flows \$26.73).

The interest costs and interest revenues of the three fictitious investments (investments in the cash flows of each period) are:

The summary of earnings and return on investment are given in Table 5.

To complete the computation of earnings we must determine the amount of the "Unrealized Profit" which has been realized. The method used here is to compute the difference between the earnings computed using 6% as the cost of capital and the earnings computed using the anticipated

TABLE 4
COMPUTATION OF INTEREST COST AND REVENUES

Period	Investment	Interest Year 1 Using 6%	Investment plus Interest	Interest Year 2 Using 6%	Investment plus Interest	Interest Year 3 Using 6%
1	9.43	.57				
2	8.90	.53	9.43	.57		
3	8.40	.50	8.90	.53	9.43	.57
	26.73	1.60		1.10		.57

TABLE 5
COMPUTATION OF INCOME AND RETURN ON INVESTMENT

Period	Proceeds	Depreciation	Interest Cost	Income	Interest Revenue also Net Income	Return on Investment
1	10.00	9.43	.57	-0-	1.60	6%
2	10.00	8.90	1.10	-0-	1.10	6%
3	10.00	8.40	1.60	-0-	.57	6%

* $1.60/26.73 = 6\%$. The \$26.73 is the initial outlay.

* $1.10/18.33 = 6\%$. $(8.90 + .53) + (8.40 + .50) = 18.33$.

* $.57/9.43 = 6\%$. $8.40 + .50 + .53 = 9.43$.

rated rate of return as 10%. Consider this amount to be the realized profit and add it to the earnings computed previously.

The nature of the difference between the cost of the investment and the present

would he be doing an outstanding job. Thus the capital budget request would be tempered by the realization that estimated cash proceeds must be conservative since in the future they will form the basis of performance measurement as well as review of the capital budgeting decision, and profits will result only from exceeding the estimated cash proceeds.

TABLE 6
COMPUTATION OF REALIZED PROFIT

Period	Net Income Using 10%	Net Income Using 6%	Expected Profit which has been realized
1	2.49	1.60	.89
2	1.74	1.10	.64
3	.91	.57	.34
			1.87

value of the cash flows using the cost of capital as the rate of discount is interesting. This amount which we have called "Unrealized Profit" may represent an "excess" incentive to invest. The investment should be undertaken if the present value of the cash flows is equal to or greater than the cost of the investment (i.e. the cash flows including the investment outlays are positive). Since the present value of the cash flows is greater than the cost this investment may have excess incentive.

It could be argued that since \$1.87 of excess present value is expected, the earning of this amount will not result in profits. In terms of managerial decision-making the division manager who merely makes the return which he had predicted in justifying the investment does not deserve special rewards. Only if he earns "profits" that were hoped for but not expected

Application of the Procedure

Obviously there is a great part of the preceding theory of depreciation which is not practical for application. It is not meant to be a universal method of depreciation computation, but rather a general explanation of depreciation which will help us to appraise current methods of depreciation accounting and possibly lead us to better depreciation practices. There are some cases where the method cannot be used. For example, an asset such as a recreation room built for employees may not be revenue producing.

However, there are several areas where the theory has immediate application. Two of these areas are the accounting for assets purchased under tax laws allowing accelerated depreciation, and the measuring of performance of management.

The method of depreciation accounting outlined above was based on the anticipated cash flows at the time of purchase. Thus income taxes have already been deducted. The timing of tax deductions would obviously affect the cash flows, and in turn would affect the timing of depre-

ciation. This is consistent with the premise that a firm is purchasing a revenue producing (or expense reducing) mechanism rather than a bundle of molecules.

If a conventional method of depreciation accounting is used, then the theory carries over in part. A portion of the value of the asset is being consumed as the tax reducing potential of the asset is consumed, thus the valuation of the asset should be reduced when the ability to reduce taxes is being used. If the depreciation for tax purposes is at a more rapid rate than for normal depreciation, the accounting procedure should note that the value of the asset is being reduced by a debit to an expense account and a credit to a contra-asset account.

The second area of application is measuring performance of management. The method of depreciation suggested here is essential to achieving good results in this area, since it removes chances for serious errors which are likely to result from the use of conventional depreciation accounting methods, and which are compounded by the use of accelerated depreciation.

Conclusions

This article has scratched the surface of an interesting and complex phenomenon. It offers a possible answer to the problem of assigning the cost of a long-lived investment to different time periods. We should not dismiss the problem as one of joint costs and as having no absolutely correct solution. There is a reasonably correct solution and we should attempt to understand it.

It can be assumed that two of the most important measures of performance used by investors, management, social scientists, and others are the income figure, and the return on investment. Conventional depreciation accounting procedures generally make both of these computations subject to severe criticisms. It is the argument of this paper that it is possible to depreciate a long-lived asset in a reasonable manner which will give good results for comparing successive periods of a company's operations using either net operating income or return on investment.

The depreciation charge is based on the expectations at the time of purchase. If after acquisition management changes the method of operation, or economic conditions are not as forecasted, the depreciation schedule is not changed. However, the reported income and return on investment will differ from the planned figures, thus they will indicate when there is a need for investigation.

It is conceded that the methods suggested in this article are not applicable to all investments. Some investments will not generate explicit proceeds (for example a company recreation field) or the cash proceeds of the investment may be interwoven with the proceeds generated by other assets. The method cannot be used in these cases. However, the interpretation of depreciation suggested here is of broad relevance and can be used when the investment decision results from an analysis of expected cash flows, or when the benefits are expected to be equal for all time periods.

YET MORE ON TAX ALLOCATION

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ROBERT Jaedicke and Carl Nelson propose a slightly different point from which to view the argument for the inter-period allocation of the tax differential arising from the application of accelerated depreciation for tax purposes only. Gainsaying the question of whether the differential is a tax saving or a tax deferral, Jaedicke and Nelson concentrate attention on funds flow as they conclude that:

So long as taxes are treated as expenses, the differential tax resulting from using different accounting methods for reporting and tax purposes should be 'allocated' so as to show the new source of funds arising from this practice. This should be done regardless of whether or not the liability will ever have to be repaid. Such a procedure would be helpful in assessing the effects on working capital of good operations and wise income-tax management.¹

Subsequently Arnold Johnson summarized his position against period allocation of the tax differential, concluding that.

... the statement of income for a given corporation for a given year should contain a deduction only for the income taxes payable to the United States Treasury for that year. A provision for income taxes is a period debit to profit and loss. No part of such a provision is allocable to future periods of income because the allocation lacks the proof of either a legal liability or of a 'current asset' (i.e., 'inventory') value. (Emphasis in original.)²

Johnson's article, though following in time, made no overt reference to the earlier Jaedicke-Nelson article and is taken here as an independent element of the continuing debate on tax allocation. The intention of the present writing is rebuttal on the Jaedicke-Nelson arguments. While along the way it hopes to provide evidence sup-

porting Johnson's position that "allocation lacks the proof of either a legal liability or of a 'current asset' (i.e., 'inventory') value," the present effort centers itself in the following funds framework; the one in which Professors Jaedicke and Nelson place their arguments.

Source of Funds Interpretation of Accelerated Depreciation

From a funds standpoint, with before-tax income of \$195,000 and alternative tax bills of \$95,000 (using accelerated depreciation) or \$97,500 (using straight-line depreciation), Jaedicke and Nelson would report the second column as tabulated at the top of the next page.

There is no change in the funds increment reported. The funds statement, as a reflection of the Jaedicke-Nelson procedure, simply differentiates sources so that, at what one would hope to be a calculated risk of confusion, management and stockholders are made aware that after-tax income, sans allocation, is actually not all income but partly income and partly new capital borrowed from the government. "The writers feel the procedure achieves the proper distinction between 'capital' and 'income.'"³ There is perhaps less reason to fear confusion about the credit member of the entry charging the tax differential to income. Retained earnings is relieved of credits which some of us would hold as appertaining thereto and a liability

¹ Robert Jaedicke and Carl Nelson, "The Allocation of Income Taxes—A Defense," *THE ACCOUNTING REVIEW*, April, 1960, p. 281.

² Arnold Johnson, "'More' on 'Income-Tax-Allocation' Accounting," *THE ACCOUNTING REVIEW*, January, 1961, pp. 82-3.

³ Jaedicke and Nelson, p. 280.

<i>Sources of funds</i>	<i>Without inter-period tax allocation</i>	<i>With inter-period tax allocation</i>
From operations:		
\$195,000 less \$95,000 taxes	\$100,000	
\$195,000 less \$97,500 taxes		\$ 97,500
Add back straight-line depreciation booked	5,000	5,000
From government loan arising from the use of accelerated depreciation		2,500
	<u>\$105,000</u>	<u>\$105,000⁴</u>

⁴ Structurally, this represents a minor modification of the Jaedicke-Nelson presentation to accent the point that the tax differential is charged to income. Jaedicke and Nelson, p. 280.

or equity account is created around the words "loan" or "subsidy" with a possible hint of "infinite life."

But return for a moment to the Jaedicke-Nelson funds statement to note carefully the wording used to identify the tax differential: "From government *loan* arising from the use of accelerated depreciation." (Emphasis added this time.) Jaedicke and Nelson, it is true, later state carefully they do not choose to rest their case on the assumption that the tax differential is but a loan. Inter-period allocation is held to be in order "regardless of whether the liability will ever have to be repaid." Nonetheless, the word "loan" looms larger and larger as one seeks the rationale of the accounting method they defend.

And their position, if a trifle weak in terms of firepower, seems well enough defended in terms of manpower. But even without frontal assault, it is somewhat vulnerable to logical sniping. The question can be raised, for example, whether or not further analysis of tax and non-tax deductions would not seem to disclose offsetting loans made to the government in the form of accounting deductions from income not allowed for tax purposes. Using the reversal test, wouldn't a firm following their procedure be entitled to treat such things as disallowed warranty anticipations as debits to "Receivable from the Tax Bureau" and credits to something like "Involuntary Capital?" However, Arnold Johnson and others have provided us with cogent arguments on questions such as

this. Therefore this paper will attempt a frontal assault; an analysis of the reality of the tax liability or "loan" itself.

To this writer it seems quite clear the Jaedicke-Nelson waiver of the relevance of the permanence-of-savings issue—"regardless of whether the liability will ever have to be repaid"—is only for the sake of argument. One is entitled to the conclusion they are not yet ready to concede that firms using accelerated depreciation for tax purposes aren't simply borrowing from the government. As a premise, they grant Davidson his assumption as to the permanence of tax forgiveness, given continuation of the 1954 provisions and continuity of investment.⁵ But they can't resist a parting shot: "Davidson's evidence of regularized (and growing) investment carries the data through 1957. In 1958, investment in producers' durable goods decreased by almost 13%."⁶ The balance of this paper will be devoted to the issue which it seems Jaedicke and Nelson would hold is still in doubt. And surely there is no other significant issue at stake.

The position here to be taken is this: it seems very difficult to accept the necessity for inter-period allocation of taxes unless there ultimately will prove to be something to allocate. What are the prospects of having something

⁵ Sidney Davidson, "Accelerated Depreciation and the Allocation of Income Taxes," THE ACCOUNTING REVIEW, April, 1958, pp. 173-180.

⁶ Jaedicke and Nelson, p. 278. It will later be contended the phrase could read "or growing" rather than "and growing" when replacement price increases are also considered.

to allocate? Not very bright, if one can accept the lessons-of-history analysis which follows.

Permanence of Tax "Savings"

There is a way of looking at the relative permanence of the tax savings under accelerated depreciation which does not require debatable extrapolation of investment rates. It is retrospective rather than prospective and takes the following form:

Income taxes have been a consideration in business planning for 47 years. (Early tax articles indicate the problem seemed quite as serious when the rate was 1% as it seems today.) These same 47 years have also witnessed cyclical extremes at least as great as any previously experienced by an industrialized America.

Assuming accelerated depreciation had been permitted by the 1913 Code, select in your own mind a subsequent twenty-year period which seems to have produced that combination of events—declining profits, declining investment, and increasing tax rates—most likely to cause an “interest-free tax loan” to come due during a dangerously low cash position. It is doubtful if such a period of 20 years can be found which involved conditions apparently more inimical to the tax-wisdom of accelerated depreciation than the period 1929 through 1948.

From 1929 through 1948 maximum federal corporate income tax rates rose from 11% to 38% of taxable income, an increase of well over 200%.⁷ The “effective” corporate income tax rate (corporate taxes as a percentage of before-tax profits) rose from an average of 12.1% for the years 1929-1936 to more than 56% in 1944, declining to 34.5% in 1948, an increase of more than 350% at its peak.⁸ During this same period, private non-residential construction (essentially “plant” in business terms) fell from \$5,082 million in 1929 to \$961 million in 1933, rising slowly to a peak for this period of \$9,324 million in 1948.⁹

Purchases of producers’ durable equipment, amounting to \$5,850 million at the beginning of the period, declined substantially during the early 1930’s and, after regaining the 1929 level in 1940, remained somewhat constant at that figure until 1946. In the immediate postwar period, purchases of producers’ durable equipment rose from \$10,733 million in 1946 to \$19,110 million in 1948.¹⁰

Standing on the brink of this period of 1929, with a glimmer of what lay ahead, the tax-allocation advocate would certainly have argued for the recognition of a tax liability incurred through the use of accelerated depreciation for tax purposes. Yet notice, from the table on the next page, what would have happened.

These figures are probably surprising. The logical objection to be raised is that they relate to the total business sector rather than to the individual firm. Yet taking into account an increase of 28.9% in the number of firms during 1929-1948,¹¹ accelerated depreciation would still have exceeded straight-line depreciation in every year 1929 through 1948. For this average firm, the differential would have been as high as \$321 in 1948 and as low as \$60 in 1945.

With these figures confronting them, those who still warn of tax deferral must presume an upcoming depression of greater depth of duration than that which took place within the 1929-1948 period. Future tax rates are of course not relevant to the situation as long as accelerated depreciation continues to exceed straight-line de-

⁷ *The Taxation of Corporate Surplus Accumulations*, (Washington, D. C.: United States Government Printing Office, 1952), p. 4.

⁸ *Effects of Taxes on Corporate Policy*, (New York: National Industrial Conference Board, 1943), p. 23.

⁹ *National Income, 1954 Edition*, (Washington, D. C.: United States Government Printing Office, 1954), pp. 162-163.

¹⁰ *Ibid.*, pp. 162-163.

¹¹ *Statistical Abstract of the United States, 1953*, (Washington, D. C.: United States Government Printing Office, 1953), p. 475.

EXCESS OF DECLINING BALANCE METHOD OVER STRAIGHT-LINE DEPRECIATION AND RETROSPECTIVE TAX SAVINGS, TOTAL BUSINESS SECTOR, 1929 THROUGH 1948^a

Years	Excess of declining balance over straight-line depreciation, assets acquired 1929 through 1948 (millions of dollars)	Annual income tax savings at various federal corporate income tax rates (millions of dollars) ^b			
		"Effective" tax rates	Statutory tax rates	Minimum	Maximum
1929	\$ 445	\$ 54	\$ 49	\$ 49	\$ 49
1930	800	97	96	96	96
1931	768	93	92	92	92
1932	712	86	98	98	98
1933	645	78	89	89	89
1934	618	75	85	85	85
1935	629	76	86	86	86
1936	688	83	55	103	
1937	783	128	63	117	
1938	734	153	92	139	
1939	697	120	87	132	
1940	727	198	108	174	
1941	811	349	235	251	
1942	568	298	142	227	
1943	468	265	117	187	
1944	363	204	91	145	
1945	370	187	93	148	
1946	931	325	196	354	
1947	1,676	584	352	637	
1948	2,342	807	492	890	

^a Un-incorporated business would have accounted for 20 to 30% of the depreciation differential over the range of the table. Corporate rates have been used here merely to portray tax effects under rising tax rates.

^b These amounts were derived by rather laborious columnar-type calculations too lengthy for citation here, but the reader can satisfy himself as to their general validity with a few minutes of arithmetic based on the capital spending rates cited in the previous reference. A more elaborate analysis than that shown above would relate itself to types of assets actually purchased and a table of useful lives such as that in bulletin F. Average service lives of 50 years for plant and 17.25 years for equipment were taken from Terborgh's correlation of Bulletin F service lives and his "observed patterns" by asset groups. See George Terborgh, *Realistic Depreciation Policy* (Chicago: Machinery and Allied Products Institute, 1954) pp. 82 and 96.

preciation. A future lengthening or shortening of service lives for depreciable assets might modify the relationship between accelerated and straight-line depreciation, but this could as well produce favorable results as unfavorable ones. General economic studies (e.g. Kuznet's, Brown's) involving estimates of composite or average service lives have in the past presumed 20-30 years. The assumption of 50 years for plant and 17.25 for equipment embodied in the table produced a composite sufficiently long to bridge the depression gap of the thirties. At present, there seems no basis for predicting changes in service lives sufficient to affect the conclusions to be drawn from the 1929-1948 study. On the one hand, the prospect of cumulative

technological improvement suggests obsolescence will act increasingly to reduce useful lives. On the other hand, automation may act to extend useful lives and reduce the mobility of capital because of the high cost of early replacement.

As one who generally favors the use of accelerated depreciation (tax and non-tax, with or without allocation), the writer is a bit hesitant to publicize figures such as those above lest Congress reassess the validity of original assumptions as to the tax-revenue effects of the 1954 code. Revocation would certainly stem the tax-induced shift to more rapid depreciation for reporting purposes. Whatever this paper might add to an understanding of the effects of accelerated depreciation, the writer would

think it a considerable net loss if Congress were belatedly to heed Brown's warning in 1955 that "... the revenue losses would amount to over \$2 billion in the fifth year, over \$4 billion in the tenth, nearly \$4 billion in the fifteenth, and \$2 billion in the twentieth. This revenue loss would then grow at 3% per year."¹³

The Tax Differential as a Liability

In the spirit of rebuttal, one or two other points developed in the Jaedicke-Nelson defense of tax allocation should be discussed briefly. One question they raised may be paraphrased: "What is the difference between disregarding the liability arising from the tax-use of accelerated depreciation (assuming "normal" rates for book purposes) and disregarding the current liability for purchases insofar as the latter figure tends to remain fixed or grow over time?" The answer seems simple. Treating with the total tax differential—not some portion of it, as they do—the Jaedicke-Nelson tax liability is based on two contingencies: (1) stable or rising earnings taxable at stable or rising rates and (2) a decrease in the capital spending rate greater than that which took place in the first half of the period 1929-1948.¹⁴

The reader is asked to judge the probability of the simultaneous occurrence of these two events for any appreciable number of firms. The accounts payable is not so contingent. Jaedicke and Nelson, it seems to this writer, have asked us to take a giant stride in the recognition of this one highly problematic contingency when we have yet to take one short step in the recognition of contingent liabilities of a more concrete and determinable nature: bonuses, discounts, returned sales, preferred dividends, leases, etc.

The firm which will be caught-up by accelerating tax depreciation will only be caught-up if it ceases "regularized (and growing) investment." It doesn't take a

committed Keynesian to assume that such a firm normally will only discontinue regularized and growing investment when it ceases to have regularized and growing revenue and regularized and growing taxable income. The firm having prospects of sudden liquidation has no more reason for recording a tax liability than it has for recording a "Receivable from the Tax Bureau in the Year After the Firm Goes Out of Business." Even the firm involved in deliberate liquidation-through-operation (to maximize fixed-cost recovery) would find the amount of its ultimate tax liability extremely hard to predict and would be compelled to extrapolate not only earnings but also effective tax rates.

There is yet another question to be raised about the meaningfulness of an analogy between accounts payable and a "deferred-tax liability." From an input-output view of the purchases which give rise to accounts payable, one would expect to find—and the accountant would scarcely wish to omit—the related accounts receivable on the books of the vendor. Would Professors Jaedicke and Nelson find themselves willing to certify a "Deferred Tax Receivable" on the books of the Internal Revenue Service, a receivable based upon a reasonable degree of expectation *a la* the contingencies cited above? Following a similar line of reasoning, wouldn't they also be willing to accept a "Deferred Tax Receivable" arising from

¹³ E. Carey Brown, "The New Depreciation Policy Under the Income Tax: An Economic Analysis," *National Tax Journal*, 8:88, March, 1955. To dispute Brown's conclusions, one would first have to dispute the reasonableness of his assumption of a 3% annual rate of growth in private investment.

¹⁴ Lest it seem that Professor Jaedicke and Nelson might strengthen their basic argument by envisioning a "tax-liability" which was a portion of rather than the total of the tax differential, try to imagine how one would go about the imputation of some intermediate amount. As to the capital spending rate: need it be added that this rate involved both replacement and expansion or that this spending is not subject to price-adjustment since depreciation charges are based on cost?

LIFO on the IRS books, the latter receivable having a shorter collection period? The fact that Congress talked of a catching-up in their deliberations on the 1954 Code scarcely seems a point of evidence for their case.

For the typical firm, and in line with the going concern precept, even the mere maintenance of capacity on a rising price level can prolong the day of reckoning indefinitely. Brown, starting with the assumption of a stable price level, calculates the requisite growth in the depreciable base is but 1% per year.¹⁵ And the depreciable base seems certain to grow, if not through expansion, simply through replacement on a rising price level.

One point remains, perhaps picayune, but it does have its interesting sides. Jaedicke and Nelson cite the House Committee Report on the Internal Revenue Code of 1954 to show that "The faster tax write off will increase available working capital." For the moment it is only a side issue that the authors have set out to show there are strings attached to this increase. The immediate point is that one is inclined to lean less heavily on the authority of the House Committee when he compares the Jaedicke-Nelson statement that "in 1958, investment in producers' durable goods decreased almost 13%" with the statement of the same House Committee in 1954 that the new depreciation methods are designed "to assist modernization and the expansion of industrial capacity, with resulting economic growth, increased production, and a higher standard of living."¹⁶

Conclusion

The case which can be made for tax allocation because of a difference between book and tax depreciation must be logically predicated, no matter the direction of argument, on the assumption the tax differential is in reality a loan, with or without interest. This paper holds that this

is a most tenuous assumption and that it rests on considerations which seem no more significant than other-side-of-the-coin situations in which the tax bill is over- rather than under-paid because of existing tax law. There is always the possibility that another Congress will revoke the more rapid tax-depreciation methods, but even postulating revocation, tax-allocation advocates would still have to defend assumptions that a loan exists in fact. Retroactive revocation, a possibility through 1954 and even 1955, now seems clearly out of question.

By and large, it does not seem unjust to charge inter-period tax-allocation advocates in general, and Professors Jaedicke and Nelson in particular, with an unstated assumption that there exist no irreconcilable differences between the bases for computing taxable and accounting income, that somehow and somewhere there is "a" figure for the true tax liability based on accounting logic and not upon a tax code enacted by non-accountants in the give-and-take climate of lobbying, fiscal policy, and social equity. In more specific terms, they can justly be charged with concentrating their attention on one isolated line of Schedule M (Reconciliation of Reported and Taxable Income) while ignoring simultaneously both the implications of the growing length of Schedule M and the other specific items which are also subject to reconciliation because of timing. It is probable that all accountants would like to see the dawn of the day when these words of the code held as much truth as poetry: "Taxable income shall be computed under the method of accounting on the basis of which the taxpayer regularly computes his income in keeping his books." In the meantime, and it promises to be a sub-

¹⁵ *Ibid.* p. 87.

¹⁶ Report of the Committee on Ways and Means on H.R. 8300, *House Report No. 1337, 83rd Congress, 2nd Session* (Washington, D. C.: United States Government Printing Office, 1954, p. 2.)

stantially long meantime, history forces us to conclude that tax and non-tax income fundamentally are unmateable beasts of quite different species, regardless of how the zookeepers choose to label their cages. We may later find some way to cross-breed the tax and non-tax species, perhaps with an eye on dominant characteristics, but genetics tells us the prospects are pretty dim.

At the time of this writing, a new political administration seems on the verge of pressing for additional tax incentives to investment, perhaps in the form of increased allowances for depreciation. If we are to have something like double-double straight-line depreciation or twice-sum-of-the-years'-digits depreciation, either for the total economy or a significant portion of it, there will certainly be a need to reassess the arguments on both sides of the period allocation question. But if we are to have what seems more likely in the offing at the moment, a "tax credit for companies whose investment exceeds depreciation allowances,"¹⁷ Jaedicke and Nelson will inherit some interesting questions. Would they add this tax credit to the amount of the government "loan?" Would they do the same for the firm who found such a tax credit good enough reason to return to straight-line depreciation? The answer to these two questions is "probably not"—unless the difference between investment and depreciation allowances were required to be tacked onto scrap value for capital gains purposes, or something else equally inimical to the measurement of non-tax income. But wouldn't the tax credit be a new source of funds? Then again, would Jaedicke and Nelson show a Receivable from the Government for the firm which stopped recording depreciation altogether during the period of the tax credit? Even if

the treasury department were to put a floor under depreciation allowances, we likely could anticipate a sudden general optimism regarding useful lives.

Professors Jaedicke and Nelson, it must be said in their favor, present an argument several steps above the "specific-asset" reasoning that flavored early pro-allocation arguments. That bridge apparently has been crossed. Neither do they solicit overtly on the basis of the findings of the AICPA Committee on Accounting Procedure in Bulletin 44 relative to the acceptability if not the propriety of inter-period tax allocation. Yet this is a bridge that must be crossed by those on both sides of the allocation question.

Bulletin 44 has undoubtedly played a major role in the reported fact that "where accelerated depreciation methods are used for income tax purposes only, most companies do give recognition to the resultant deferment of income taxes or, alternatively, recognize the loss of future deductibility." And what is the nature of the research that lies behind Bulletin 44?

... the committee's studies which indicate that where accelerated depreciation methods are used for income-tax purposes only, most companies do give recognition to the resultant deferment of income taxes, or, alternately, recognize the loss of future deductibility . . .¹⁸

The pain is not unbearable, but it hurts. It is only mildly alleviated by the fact that men as competent as Robert Jaedicke and Carl Nelson can find some other way of supporting the case for inter-period tax allocation stemming from accelerated depreciation, as open to argument as the case might be.

¹⁷ "Tax Changes in the Works," *Business Week*, February 11, 1961, p. 35.

¹⁸ *Accounting Research Bulletin No. 44 (Revised)*, American Institute of Accountants, 1954, paragraph 7.

OBJECTIVES OF ACCOUNTING EDUCATION

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DURING recent years objectives of education have received no little attention during conferences, in meetings, and in studies followed by articles, brochures, pamphlets, and even books. Whether attention is focussed upon education in general, business education in particular, or accounting education specifically there should be a primary or core objective evident throughout any discussion of these three levels of education. While in no way minimizing the importance of secondary objectives of accounting education, this article attempts to set forth a primary objective of accounting education and to show how it is compatible with more general education. Development of the special contribution of accounting education is brought out by illustration as well as explanation.

Accounting Education vs. That "Other" Brand

In the school library at Carbondale, Illinois, inscribed in marble, are the announced objectives of Southern Illinois University. They are:

1. To Exalt Beauty
In God,
In nature,
And in art;
Teaching how to love the best
But to keep the human touch;
2. To Advance Learning
In all lines of truth
Wherever they may lead,
Showing how to think
Rather than what to think,
Assisting the powers
of the mind

3. To Forward Ideas and Ideals
In our democracy,
Inspiring respect for others
As for ourselves,
Ever promoting freedom
With responsibility;
4. To Become a Center of Order
and Light
That knowledge may lead
To understanding
And understanding
To wisdom.

Should these announced objectives, if accepted as representative of a university's general objectives, be compatible with the objectives of accounting education?

In the Gordon and Howell report is a statement that the primary objective of collegiate business education is to prepare students for personally fruitful and socially useful careers in business and related types of activity. Should this announced objective of business education be compatible with objectives of accounting education?

One professor, in setting forth objectives to be achieved through the study of elementary accounting, in addition to others, included the following:

1. To contribute to the individual's general education by enabling him to gain a clearer understanding of the operation of the economic system in which private property and the profit goal are dominant characteristics and to develop a more intelligent sense of relative economic values.
2. To prepare a student for advanced study required for successful employment in the profession of private, public, and/or

governmental accounting, and in teaching.

3. To develop an understanding of the uses of accounting data in non-accounting positions in social institutions—private business, government, and fraternal organizations—in arriving at intelligent managerial decisions, in making intelligent evaluations of existing policies, and in formulating intelligent changes in policies.

Should the objectives of a specific course in accounting be compatible with more general objectives of accounting education?

From this series of leading questions there is a strong hint that a close relationship should exist among the objectives of general education, business education and accounting education. But what does accounting education have to offer that is not provided for in general education?

Primary Objective of Accounting Education Defined

It seems to the author that the objective of accounting education is to better prepare students to evaluate conditions and situations whether they be business, public, or private, in which monetary or economic considerations are paramount, yet not exclusive. Under the American system our citizens reserve for themselves freedom of self-determination and the freedom to pursue their ends in whatever honest way they see fit. To effectively exercise this freedom, alternatives must be weighed. Effective evaluations of monetary situations are dependent upon understanding. Understanding is dependent upon knowledge and upon ability to reason.

Knowledge of business situations is dependent upon an ability to communicate in the language of business, whether it be in relation to past performance, present position, or future expectations. Accounting education, with a primary objective of preparing students to better evaluate situations or conditions, is in position to pro-

vide specialized training not provided for in general education as such. With the broad and sometimes conflicting interests of individuals, business firms, and governmental units, it is inevitable that many secondary objectives of accounting must be considered. Some of these should be clearly defined as objectives of collegiate education. Part undoubtedly can best be developed in the field in offices of businesses or professional firms after formal college training has been completed, or at least the time devoted to academic training has run out. The main part of this discussion will be devoted to the primary objective of accounting education as set forth above and now repeated and added to. *The primary objective of accounting education is to better prepare students to evaluate conditions and situations whether they be business, public, or private, in which monetary or economic considerations are paramount, yet with a full awareness, on the part of the evaluator, of the moral and ethical considerations involved.*

Does this mean that in striving for this rather high sounding objective vocational aspects of training in accounting should be eliminated? Of course this is not the case. Since most students must find their own means of entering business, some consideration must be given to training for the first job. The technical aspects of accounting must be taken up. Although employers may hire individuals on the basis of their estimated long term potential, they apparently prefer a man with a reasonable degree of technical training so he will earn his pay without a long delay. The inclusion of technical accounting training at the college level need not be at the expense of the primary objective. The primary and secondary objectives may not only be compatible but mutually beneficial to their own development. Accounting, as the language of business, permits appropriate communication. Communication of busi-

ness situations permits an awareness of the nature of the problem. Technical competence in the subject is a necessary prerequisite to ability to communicate. How can appropriate emphasis be given the primary objective of accounting when so much time must be devoted to technical accounting training? The following paragraphs suggest some possibilities.

Approaches to the Primary Objective of Accounting Education

Regardless of the religious beliefs of individuals, nearly everyone would agree that the Great Teacher spoken of in the New Testament used many examples and parables familiar to the people whom he addressed. Many of the illustrations used were drawn from agriculture. Although there were direct references to agriculture, these were only used as vehicles upon which to bring in some additional thoughts. The subject of farming was not being taught *per se*.

Accounting education may be similar since many illustrations are presented in dollars and cents. Unlike the illustration drawn from the agricultural scene, accounting is being taught partly as the background for a profession, but it is also a vehicle around which many examples of men dealing with men in an equitable fashion may be brought out. Whether such ideas make an impression upon students of accounting depends upon the personality and beliefs of the instructor. Each instructor will have his own way of conveying ideas. It will not be necessary to preach a sermon to get his point across if he ventures beyond a narrow technical approach to the subject. Before a quarter or semester is completed, students will have taken the measure of the instructor. Of course the technical understanding of the student completing college will depend to some extent on the technical ability of the instructional staff of the college. In a short

time after graduation the student will cease to relate his technical knowledge to his teachers except to recognize that they helped him get started. On the other hand, the influence of a good teacher concerned with moral issues, attitudes in approaching problems, and the pleasure received in knowledge that the individual is making a positive contribution to society may be a source of inspiration through the balance of a student's life.

Rather high sounding generalities have been presented without indicating how these things might be achieved and still work toward necessary secondary objectives.

If one of the objectives of accounting education is to develop the abilities of individuals in analysis and evaluation of monetary situations, such analysis must be carried beyond the narrow point of weighing the effect upon income or financial position. If this were not true then accounting education could be approached almost entirely from the standpoint of limited vocational training, with no attention at all given to the moral or ethical viewpoints involved. If the only goal is to prepare for the first job, then much of the course work could be reduced or eliminated and techniques could be stressed to the exclusion of some of the reasons for doing things. Much of the approach on how to think rather than what to think could be eliminated.

Illustrations of Approaches in Specific Accounting Courses

Consider the teaching of a course in income taxes. Under a strictly vocational approach the subject of income taxes might be studied with the thought in mind of determining proper incomes to include and proper deductions to take so the resulting net income would be as low as possible. It is assumed that the income tax calculation would be proper and would

represent the lowest legal tax that could result from a given set of facts.

A slightly more general approach might be used by considering the various tax impacts of alternative courses of action on the theory that action would not be decided upon until management weighed the comparative tax costs of those alternatives. This second approach to the study of income taxes is at least one level above the first. It is true that it does have certain vocational aspects, but a broader recognition of available alternatives is in evidence. However, the evaluation which has taken place has been only on a comparative tax dollar basis. A more general analysis might still be indicated. The third approach might be one level higher than the second. Yet it would more nearly come within the broad framework of "general education." Under this plan the instructor might outline first the necessity for taxes, the overall plan of the legislative body in allocating those taxes among individuals, and a recognition that each citizen has an obligation and a privilege in sharing in the tax load. Certain other moral and ethical considerations might also be introduced at this point.

On the other hand, if the moral issue should be ignored entirely an instructor might lead in a discussion concerned with the probability of a taxpayer being caught if he used various tricks in bookkeeping or accounting to hide income or to inflate expenses. If such an approach as this is used the goal would seem to be to keep taxes as low as possible regardless of the moral implications. Such a position would be questionable under any circumstances and has no place in a reputable university's course of instruction.

A more positive side to the moral position might be brought out by the instructor without fanfare if he points out that, although imperfect, the tax law was designed to spread the cost of government

over the population as equitably as the legislators knew how. If one individual cheats on his taxes this means other individuals will be forced to bear his share of the load. As one of the objectives of accounting education, the instructor could well start from the financial aspect of a tax problem, but without seeming to emphasize the matter could easily bring in the moral aspect as well. This is just as important or more so than the strictly dollar part of "accounting education."

Another example might be drawn from a course in auditing. At some point in the course discussion will undoubtedly revolve around the code of ethics which should be followed by individuals holding themselves out as part of the public accounting profession. Again the instructor has at least two ways he can approach the subject. He can point out that the American Institute of Certified Public Accountants sponsors a code of ethics to serve as a guide for its members. Therefore, since this is in the nature of a law, the members should abide by the law. This is a narrow approach. On the other hand, the instructor might approach the subject of a code of ethics as a guide post to members to help them decide what is morally and ethically right in individual situations. Again accounting education, although within the framework of a vocational approach to a subject, still has as one of its objectives helping to strengthen the fabric of the business and professional world through influences on the students exerted at a formative stage in their lives.

Conclusion

The preceding paragraphs have developed the theme that the primary objective of accounting education should be to better prepare students to evaluate conditions and situations, whether they be business, public, or private, in which monetary or economic considerations are paramount

yet encouraging the evaluator to be fully aware of the moral and ethical considerations involved.

The reason for the existence of accounting education and most of the secondary objectives seems to be closely related to this primary objective. In the first place accountants express business situations and happenings in dollars. In order to do this they must have acquired a technical "know how." In order for this expression to be useful, it must be understood and it must be adaptable to communication to others. Therefore an accountant makes a contribution by communicating these financial facts orally and in writing. Second, in the evaluation of financial conditions or situations certain objectives of general education are met by helping the student to learn how to think. This thought process might go something like this. Normally these situations or happenings are expressed first in monetary terms, but soon after they may be converted to generalizations or observations expressed in words. When a mental appraisal is born, it is the private property of the individual who is indulging in meditation. If that thought is expressed in words, then it also becomes available to others about him. It becomes part of an organized plan in the business world as soon as the ideas are sold to others through words both oral and written. The third and final step is the conversion of the thought, which has now reached the stage of a plan, into action. For those with an

accounting background action might take the form of a recommendation to those parties having a line function. If the evaluator eventually is operating in a line function, putting the plan into action may consist of issuing a directive and then following it up.

In the third place evaluations are applicable in cost accounting, in statement presentation, in auditing, in income tax systems, and in fact all the specialized accounting areas. Study of subject matter areas seems to have meaning and sense of direction only when considered as part of the evaluator's tools.

In the fourth place the ability to evaluate paves the way for the personally fruitful and socially useful life contemplated by the Gordon and Howell report. It is personally fruitful because the individual who has achieved the primary objective feels he is making a contribution to society and his contribution is not bounded by the dollar sign alone.

Finally through the pursuit of the primary objective of accounting education the individual is encouraged to grow in technical accounting skill, to improve the powers of the mind so as to reason through business and other problems, to strengthen the sense of responsibility both in a professional and personal sense to the end that his monetary evaluations will be tempered by human understanding and seasoned by a strong sense of integrity.

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OBJECTIVES OF ACCOUNTING EDUCATION IN THE LIBERAL ARTS COLLEGE

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THIS discussion refers to the objectives of accounting education in the four-year, undergraduate, liberal-arts college in which the accounting department is often the ugly duckling. The notion that educators are in agreement on what they mean by the liberal arts should be dispelled at once. Likewise, there is inconsistency in the businessman's notions of liberal arts. Furthermore, a dilemma faces the educator: the public statements of businessmen laud liberating education; their employment actions speak otherwise.

Recently, *Fortune* surveyed the educational backgrounds of the three highest-paid men in each of 300 of the biggest companies. It was found that 67 per cent of the executives had majored in business, economics, or engineering while 12 per cent had majored in liberal arts. Thus many of the 900 who had arrived were technically trained. When business leaders recommend that students study liberal arts in preference to various areas in business, is there not the calculated risk that future business leaders may explain their greatest lack as that of technical education? Can accounting educators then frame generally acceptable objectives for accounting education?

Every effort should be made to bring some balance to this unseemly unbalanced situation; and it would appear that accounting educators are just the ones to try, for they are supposed to have an equilibrium complex. In addition, an inferiority complex account has been opened for higher education in accounting by two well-known studies, and a huge debit has been placed in that account. But in justice

let us immediately enter at least a small credit therein for certainly a part of the problem is inherited. Consider Emerson's words written a hundred years ago: "Our culture has truckled to the times. It is not manworthy. . . . It does not make us brave or free. We teach boys to be such men as we are. We do not teach them to aspire to be all they can. We do not give them a training as if we believed in their noble nature. . . . We exercise their understandings to the apprehension and comparison of some facts, to a skill in numbers, in words; we aim to make accountants, attorneys, engineers; but not to make able, earnest, great-hearted men." And today fashion thinking declares education in business wrong because its label is not liberal.

There are three classes of human arts—fine arts, liberal arts, and useful arts. Accounting is one of the useful arts. When they hear the term "liberal arts," many persons think only of the fine arts of poetry, painting, and the like. But the liberal arts are by tradition the old trivium of grammar, rhetoric, and logic; and the quadrivium of arithmetic, music, geometry, and astronomy. It should not be that the liberal arts are thought of as ennobled and theoretical while the useful arts are ignoble and practical. A liberal education is simply a full education. The liberal arts and the useful arts should ally and complement one another, both gaining in the partnership. Education in the liberal arts needs to be more conscious of its business and orient itself to the practical necessities of life while the useful art of accounting needs to

be more intellectual than it is. Liberal arts should be useful in giving a firm foundation in reading, writing, and arithmetic. On the other hand, the useful art of accounting should own that it is intellectual.

This paper suggests there are three objectives of accounting education—use, discipline, and excellence. The student of accounting should have a careful training in skills and techniques for use both on his early job start and in his later advancement, for use in his other business courses and courses closely allied thereto, for use in his personal affairs, for use in the mind-stretching of theoretical accounting, and for use in continuing education. For all these uses, there must be a certain amount of painful pen-pushing to acquire the needed subject matter. The useful arts, the liberal arts are all taught by practice. The significant and the permanent, not the trivial and the transient, can bring excitement to this time of technical training. Principles are remembered through a certain amount of detail if a right relationship is maintained between principle and detail. Here also the student must learn to recognize and to respect factual evidence. This quantitative attitude has been carried into such management areas as that of human relations as shown by several companies' stress on the "authority of facts" instead of the "authority of command."

During this arm-muscle development period, theory based upon analysis of recorded generally accepted accounting principles should flex the mental muscles. This is the theory of the *is*. But there should be also the theory of the *ought*. The spinning of pure postulates may reveal that certain actual accounting activities are not efficient. It would come close to pure theory when successive hypotheses are applied to a circumstance and from which there would arise diverse theoretical models. Propositions which are devised in this fashion might eventually be tested by

the practical. It is not enough to prepare students to operate in the existing business structure; it is also right to acquaint them with an accounting area in which new improved patterns of business operations could be worked out. This directed thought is not too advanced for accounting students with but 12-18 hours in accounting. It would be well to drop the scary word "research" and refer to this use of accounting as that of inquiry. You will recall that accounting education has been accused of being in short supply for a product called the innovator.

The use objective encourages continuing education in accountancy. The liberal-arts accounting program should be so set up that it cannot be considered terminal; questions should remain unanswered. A liberal-arts college should contract its offerings in accounting courses so those who wish to delve deeply will do so either in the graduate school or in the professional school. This is no hardship for those who cannot go from the liberal-arts college to either the graduate or the professional school, for the important thing for those who must quit with the bachelor's degree is to have acquired the ability to learn on the job. There are roles which educational institutions must play. Each must contribute importantly in the total art of accounting, but a student seeking enrollment in a liberal-arts college must be turned away if he wants specialized accounting instead of a foreign language, philosophy, science, and literature. In a liberal-arts college, accounting should be the unfinished business, the open-end.

The second main objective of accounting education is that of discipline. There are two phases—mental discipline to see other courses; mental discipline for living. We are getting many questions askers who consider the teacher a mental crutch and who try to obtain information without labor. Some educators who want to shelter

students would decry the preparation of such things as consolidated statements for mutual or reciprocal stockholdings since for many students these will not be significant either in life or on the job. But the exercise of preparation is good for the mind. The theory of discipline is that certain studies are good for the mind and that properly pursued give not only course content but also mental skill which can be transferred to other studies. Like the old, ill-reputed term "goodwill," the discipline argument too has a bad name because it has defended busy work. The discipline theory is recurrently ridiculed. But few of those who sneer have bent to genuine discipline. Some intermediate accounting can indeed classify as one of these intellectual challenges. Witness the closed-eyed junior trying to handle compensating and noncompensating errors under the clean surplus theory and its alternative. Here begins the separation of the men from the boys; this is the course that begins to make men men. The theoretical-problem solving of intermediate accounting can indeed train the brain.

Last, let's have bigger and better educational excellence. This third objective is not only a contribution to accounting education but also to the national strength. There must be a rededication to excellence. Accounting education could lead the way in this day of general indifference, of doing just enough to get by. When some would withhold recognition from the area of accounting, we ourselves must assume some of the blame for accepting less than good. We must accept only excellence—excellence from previous education, excellence in communication, excellence in character, excellence in judgment. Each student must become more than he is; there must be maximum educational achievement regardless of the sort of students served. There must be great expectations. The accounting department

has had to accept students with less than good minds. The question may be asked if it is the liberal arts which have become non-liberal, not giving the student what he should have. The question may be asked if it is the system of electives in the lower schools which permits the escape from mathematics and thus ill-prepares the raw material for the accounting curriculum. Since liberal studies are studies which we are not at liberty to omit, it may be that instead of the liberal artists reforming the business department and the business school, the business educators will have to reform the "culture vultures." Business educators should challenge the liberal artists to stop, look, and listen.

In accounting education, excellence in communication—in every discussion and in every written work—should become the generally accepted procedure consistently applied. Liberal arts is not something to concern a student during the first two years of college so the junior and the senior years can be devoted to the study of accounting and allied courses. The accounting instructor must not allow this separation. He must work to improve communication and insist on the highest standards in both speaking and writing. Grammar and rhetoric are mastered better from varied association than by single-purpose instruction; they cannot be served as a separate dish. There must be interweaving. Some would say that English should be taught by the expert and not the inexpert. But the liberal arts of reading and writing all teachers must know. Grammar, correct spelling, and clearness of expression should all factor in grading accounting examinations. Let us not be like the two plumbers who when accosted by a housewife for whom they were doing a repair job with "Help, the house is on fire," replied, "Lady we don't put out fires; we just fix pipes."

Excellence in accounting education im-

plies character with ethical standards. A student should change his plans to pursue accounting unless he knows that it is natural for him to be honest, natural to persevere in seeking satisfactory evidence; or unless he is sure that by diligent repetition of acts of integrity he can attain a high level of conduct. Here again, the accounting instructor has the opportunity to synthesize, for in accounting education there are so many places to instill knowledge of right and wrong. A student can be told every Sunday by his pastor that certain things are moral. But he is more impressed when his accounting professor tells him the same or when that professor praises a bit of ethical business behavior. This cross-fertilization will work, for psychology has shown that personal, professional, and social forces are always interacting within an individual. An instructor must always take time to go back to first principles of ethics to show students what is honorable conduct and why anyone would want to act that way. Thus he

can speed the day when "Every man takes care," said Emerson, "that his neighbor does not cheat him. But a day comes when he begins to care that he does not cheat his neighbor." In today's scramble back to religion, the philosophy of what can religion do for me is wrong. For us, it should be what can religion do through me.

This pursuit of excellence in accounting education should help to instill an appreciation of accounting. The student, the public, all must learn of the worth of accounting in making business decisions, of its role as a social force in our economic life, of its nobility. In the immediate short run, many will debit the accounting instructor as he seeks for the greatest good in exacting the best from his accounting students as well as the best from those who instruct in the liberal-arts area. But the long-run will credit the accounting instructor who has accepted only excellence. The future accounting educators will then say, "Yea, we have a goodly heritage."

THE TEACHERS' CLINIC

GLEN G. YANKEE

Editor's Note: This section of THE ACCOUNTING REVIEW is devoted to matters of particular interest to accounting instructors. The contribution of articles bearing on the nature and purpose of various types of accounting education, or dealing with techniques of accounting instruction, is invited. Address all correspondence to Glen G. Yankee, School of Business Administration, Miami University, Oxford, Ohio.

MIDDLE ATLANTIC ASSOCIATION OF COLLEGES OF BUSINESS ADMINISTRATION

STATEMENT OF POLICY RELATIVE TO A FIFTH YEAR IN THE ACCOUNTING CURRICULUM

(Adopted December 10, 1960 by the MAACBA Executive Committee)

The MAACBA has consistently maintained a deep interest in and concern for the practice of public accounting, and the preparation of students therefor. This sentiment led in 1951, to the formation of the Association, which has always required members, in addition to other qualifications, to offer programs in accountancy, registered with the New York State Department of Education. The subject of accountancy preparation has occupied a prominent place in the programs of the Association's meetings. Individual members have rendered distinguished services on boards and committees on a state, regional and national scope.

During the past three years, the New York State Education Department has been conducting studies to account for the alleged high rate of failures on the CPA Examinations in this state. One of the proposals arising out of these studies has been the inclusion of a fifth year in the accounting curriculum which would lead to a graduate degree and better prepare a candidate for the CPA Examination. The MAACBA has been privileged to participate in many of these studies. Individual members have served on committees; on at least two occasions the Association has

eagerly accepted the invitation extended by the State Education Department to confer with special committees; a draft of the current committee's report has been submitted for the comments of a significant cross-section of the Association's membership. The Association welcomes these and all opportunities to cooperate in areas pertinent to the interests of its members and of the Association objectives.

Cognizant of the importance and urgency of these developments affecting public accounting, the MAACBA issues this statement for the benefit of its members and all others who share the interest and concern of the Association in these matters. One fact is immediately recognized. The MAACBA comprises forty-four members, in four states, a Federal District and a Territory, including a wide variety of schools differing in size, organization, control and prestige. Some schools offer both graduate and undergraduate programs, other schools only one program. It is patently impossible to approach unanimity on all matters. Compromise to the extent that it vitiates principle is abhorrent. Consequently, the statements expressed here are intended to represent only those broad areas of agreement to which a

heavy majority of the members would assent.

The Association urges the continuing study of proposals designed to improve the practice of public accounting and all aspects of the preparation therefor. The statement which initiated the current New York State inquiry referred to the need to investigate the reason a high percentage of the applicants sitting for the CPA Examinations in the State of New York failed to pass such examinations. The alleged high rate of failure is not supported by objective evidence. Records indicate that the percentage has been fairly consistent over many years. A 1957-1958 sampling which compares the New York results with nationwide figures includes the New York data with the national rate. If separated and juxtaposed, the New York percentage of success would be significantly higher than the national average of the remaining states. If the real problem is one of scarcity of supply of CPA's, based on demand, it appears that the demand is aggravated by the high personnel turnover experience of public accounting firms. This condition is beyond the control of the schools. The MAACBA is reluctant to subscribe to this "high failure" thesis without the support of additional evidence.

This same "high failure" allegation provides the slender support for the implication that deficient academic preparation is the only cause of this condition. This assumption is clearly not warranted by the facts. For example, in the auditing part of the examination, the required experience is an important preparation. Other factors beyond the school's control include the examination itself and the grading practices, time lag in sitting for the examination and the extent of post-graduation review and preparation by the candidate. The Association recommends that each of these factors be studied to the extent possible.

The Association recognizes the general

value of more extensive education in all areas of study. On the other hand, the Association is not impressed that the fifth year will solve the problem of failures on CPA examinations. Results on the examination are influenced by the ability of the candidate, and the merits of the college training to which he has been subjected. An integrated four year course can and should provide the theoretical background needed for a well balanced program.

Some very practical considerations work against the validity of the proposal for a required fifth year. Students who seek careers in public accounting already constitute only a small minority of business administration enrollees. To require this group to complete an additional year will tend to divert potential CPA Candidates into alternate four year programs. The non-urban schools which offer a public accounting major will not be able to attract sufficient students to a fifth year course to support this operation.

There can be, of course, no objection to the establishment of fifth year programs on an optional basis. This matter was reviewed by the Association in a memorandum directed to its members in May 1960. This report stressed the preparation to be required for entrance to the fifth year, the courses to be included in the program, and the recommended reduction in the experience requirements by one year under certain conditions.

In summary, the Association continues its high interest in matters affecting preparation for public accounting. The Association is grateful for the opportunity afforded by the New York State Education Department to cooperate in the current studies. The Association believes that the best interests of the public, the profession and the Association members can be served by

1. Continued studies of all aspects of the matter.

2. Evaluation, and adjustment as indicated, of certain four year curricula.
3. Continuance of the four year program as a requirement for entrance into Unit I of the New York State CPA Examinations.
4. Encouragement of fifth year offerings on an optional basis, with credit for

one year of the experience requirement.

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ACCOUNTANCY AND PROFESSIONAL DEVELOPMENT

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Those who would divine the future dimension of the accountancy profession must inevitably measure the significance of many economic, social, and political influences which condition the posture of American business. Yet, in spite of the difficulty of such an undertaking, these prophets do foretell a vast expansion in the present boundaries of accounting practice. In the climate of this anticipation, it is not surprising to note the ferment which currently prevails in business education. Educators and businessmen alike are concerned about the educational framework for future careers in business. In consequence, they have been compelled to reexamine their respective contributions to this period of professional preparation, to the end that their efforts may be more mutually reinforcing. Such an appraisal manifestly embraces all phases of business education; however, during the past decade, particular emphasis has been focused upon education for executive development, to which accounting has been a noticeably important contributor.

One of the most important phenomena relating to business education since World War II has been the growing interest demonstrated in post-graduate training. This interest has found expression in three principal forms:

- (1) an accelerated enrollment in gradu-

ate colleges in continuation of undergraduate training.

- (2) a review for, or reorientation of, business executives in the perspective of new educational developments, with emphasis on the integrated character of the many and varied influences important to the deliberations of management, and
- (3) informal self-improvement programs initiated by the aspirant for personal recognition.

The vehicles most often employed for executive review or development are specially conceived and prepared management training programs. The appeal of traditional graduate education and self-improvement programs—including instruction in evening colleges and extension divisions—is not so compelling for that individual holding a position of managerial or executive status.

Executive Development Programs

An executive training program "designed to develop breadth in managerial thinking rather than to investigate practices and techniques"¹ is a representative

¹ *Eleventh Executive Conference on Administrative Policies and Problems*, 1960, The Wharton School of Finance and Commerce, University of Pennsylvania, p. 5.

model of current educational philosophy. The objectives of one such program are expressed as follows:

- To develop an expanded consciousness of the political, economic, and social influences which affect the conduct of business.
- To develop a top management perspective, an aptitude for considering problems from the viewpoint of the company as a whole.
- To develop an acquaintance with and appreciation of other departmental functions, a breadth of vision beyond the scope of the executive's own area of activity.
- To develop increased competence in the individual's own field of specialization.
- To develop added proficiency in the use of basic management techniques.²

Executive and management training programs are sponsored both by individual business enterprises and educational institutions. Company-sponsored plans have enjoyed unusual popularity since World War II. It is reported that 88 per cent of the 500 largest corporations have such programs. Of these, more than 80 per cent had their beginning less than 10 years ago, while 60 per cent are less than 5 years old.³ While the operational and curricular details of these programs vary, they do exhibit similar concerns for such matters as internal organization, recruitment and maintenance of management personnel, appraisal of executive potential, and the development of proficiencies in specialty areas. These programs are offered variously to one or more levels of administrative and/or operational management, and often are provided only for selected personnel evidencing promise of unusual capacity. Paralleling the growth of company-sponsored programs has been a similar experience in those provided under the auspices and direction of universities. These programs vary in a number of respects: some confine their attention to a coverage of *broad* administrative and management problems, while others provide *specialized* training and review in

functional areas; some periods of instruction extend over several months, and others are shorter, having an average life of two to six weeks; some are residential programs, while others do not require campus residence. In the welter of such diversity it is difficult to generalize as to their curricular emphasis. Yet, some harmony of interest is in evidence, as most programs give attention to human relations, personnel development, business communications, financial administration, managerial accounting and control, marketing management, employee relations, and the influences of environmental conditions on decision-making.

While it may be hazardous at present to describe these plans as educationally mature, it must not be assumed that they are experimental in nature or short-lived. It is abundantly clear that both education and the business community have found them to be mutually profitable; some educators have even conjectured that they may well be the most important development in business education in the next decade.

The Role of Accountancy

The success of these programs has been attributed, at least in part, to their emphasis on the *integration* of various business disciplines which influence management's deliberations. To this educational compound, accountancy has made important contributions. In the opinion of one university, "as one of the primary tools of management, accounting is indispensable in solving a wide range of problems encountered in the functional areas of production, distribution, and financial management."⁴

² *Executive Development Program*, 1956, Graduate School of Business, Stanford University, p. 2.

³ *Second Report to the President*, The President's Committee on Education Beyond the High School, July, 1957, p. 69.

⁴ *Executive Development Program*, 1960, School of Business Administration, The University of Michigan, p. 5.

Another commentary on scope and importance suggests the broadness in dimension of accountancy.

Accounting, as one of the major tools of business coordination and control, covers not only the field of financial accounting, but also those of cost accounting, budgeting, and internal auditing. Major developments have taken place in all these fields during recent years, and the chief accounting officer, commonly known as the comptroller, has come to be recognized as one of the important officials of American business. The purpose of accounting is to serve all divisions of the business⁸

Based upon a sample survey of 25 university-administered programs, the authors are persuaded that *all* assign major subject-area importance to accounting and other quantitative methods. Of the total number of subject-areas in which instruction is offered, accounting and other quantitative methods are represented to the extent of approximately 20 per cent, ranging from a low point of inclusion of 15 per cent to a peak of 50 per cent. Descriptions of these subject-areas include such references as the following:

Management Control Through Accounting Analysis

Managerial Accounting

Statistical Controls and Forecasting

Cost and Revenue Analyses for Management Planning and Control

Financial Controls

Business Forecasting and Planning

Management Accounting and Profit Planning

Budgeting and Financial Control

Managerial Finance

Many of these carry strong accounting emphasis; others are not accounting dominated, but rather give expression to its collateral uses. Closer examination of some of these subject-area descriptions exposes interesting detail, including such items as the following:

Internal Control

Financial and Accounting Ratios and Managerial Decisions

Management Control Through the Use of Budgets

Practicalities of Business Electronic Data Processing

Mathematical Bases for Decision and Programming in Industry

Computer Control of Machines and Processes

Profit Measurement and Cost Control

Statistical Techniques and Measurements

Measuring Performances Through Financial Analyses

Money Flows in Financial Administration

Instruction in the use of accounting method is also provided in complementary subject-areas such as Financial Management, or Financial Administration, wherein attention is directed to studies in profit measurement, break-even analysis, cash flow, capital budgeting, and sources of capital. The overtones of accounting intrude throughout the study of other business disciplines and are integrated therewith in aid of management decision-making.

Significantly, this attention to the accounting function in its management perspective occupies an important part of the total program time. The sample study indicates that an average of approximately 20 per cent of total program time is devoted to accounting and other quantitative methods as a point of special study, or to the supporting role of these methods in other subject-areas. Not all programs, however, give special attention to functional areas in detail; consequently, it is difficult to generalize in such time analyses.

Another point of interest revealed by the sample study is the importance of accounting faculty participation. Accounting instruction is extracted both from the academic ranks and professional practice. Yet, in most programs the academic personnel predominate. An average of approximately 10 to 15 per cent of the total instructional staff are accountants or, identified by the

* *Executive Development Program, 1956, Graduate School of Business, Stanford University, p. 3.*

character of their credentials, have a strong accounting orientation. In a number of plans, top administration is provided by accounting faculty members.

These results dramatize the importance of accounting, as it subtends very nearly the whole arc of executive decision-making. They further reveal an increasing awareness of the importance of accounting as a complementary tool for other business disciplines. Surely the role of accounting, together with that of other quantitative tools, has contributed substantially to the progress of university-administered executive development programs.

Professional Development in Accountancy

Not only has accounting been useful in executive management development, but the accountant has also demonstrated an appreciation of his own personal need for continuing education. An authoritative spokesman for the profession recently observed:

In order to achieve and maintain his competence, the CPA must engage in a never-ending pursuit of knowledge. He studied to pass the CPA examination and that, together with his early years of experience, brought him to a certain level of competence. Continued reading of technical literature may keep him abreast of some of the advances of his profession. Such haphazard and often inefficient methods of learning, however, can neither adequately prepare him to render satisfactory service in the new and dynamic fields . . . , nor keep him informed of all the developments which are occurring with dazzling speed in his rapidly growing profession.⁶

This recognition of need for coordinated instruction in an atmosphere of technological change has already been faced by the older professions of law and medicine. In reaction to this need, the American Institute of Certified Public Accountants established a program of continuing education in 1956. Under the supervision of a part-time director, three courses were prepared:

(1) Report Writing, (2) Tax Practice Administration, and (3) Accountants' Legal Responsibility. In 1958, the Institute, in an enlargement of the status of the program, created a formal Division of Professional Development, appointing thereto a permanent director. This Division has been charged with compiling and disseminating a variety of course material appropriately responsive to the needs of practicing accountants. Additional courses have been developed, including seminars on Accountants' Fees and Budgeting for Profit in Small Business. Anticipating the future, the Director has suggested that "the Institute stands ready to produce any course for which there is a need and demand."⁷ The expectation is that such educational efforts may meet, at least in part, an acknowledged technical deficiency of accountants, germinated by their acceptance of new responsibilities in professional practice.

In addition to offering courses contrived to answer short-run technical needs, there yet remains an obligation to evaluate the larger role of the accountant as a professional man. Dr. Earl J. McGrath, former United States Commissioner of Education, has succinctly summarized the responsibilities of professional education as follows:

The principal purposes of professional education . . . are *first* to provide the foundation of theoretical knowledge upon which competent practice must be based, *second*, to cultivate the distinguishing technical skills of the profession, and *third* to inculcate the attitudes and qualities of character usually covered by the term "professional ethics."⁸

This clearly represents a challenge to the

⁶ Louis H. Penney, "Continuing Professional Development," *The Journal of Accountancy*, September, 1959, p. 32.

⁷ Louis W. Matusiak, "The Role of Educators in the American Institute's Professional Development Program," *THE ACCOUNTING REVIEW*, April, 1960, p. 199.

⁸ Earl J. McGrath, "Education, Profession and Public Affairs," *The Journal of Accountancy*, April, 1958, p. 45.

profession—its members and its organizations—which, if adequately met, should augur for long-run benefit both to the accountant and the profession.

In what manner can the objectives of professional education, in their broadest implications, be achieved? Since technical proficiency represents but a part of a larger educational responsibility, present efforts are not ideally directed toward this distant, perhaps illusory, goal. The executive development programs, however, may possibly offer useful prototypes for professional *accounting* development. The various levels to which instruction is directed, namely, middle management, top management, and operational personnel, and the various means of implementation, namely, in-plant training, university-administered programs, courses of varying lengths, etc., may possibly suggest similar avenues for meeting the accountant's needs in continuing education. Both executive and professional accounting development indicate an emerging shift in emphasis from intensive cultivation of technical skills to a more liberal education base; if properly programmed, a beneficial marriage of technology and science, of specialization and the humanities, may result.

Just as the focus of executive development programs has centered on university plans, conducted under the aegis of a broad

and liberal frame of reference, so may the accountant's professional development prosper in such a climate. The value ascribed to the various instructional methods of management training gives hopeful promise of similar rewards for the professional accountant. In the opinion of Dr. McGrath, "it can be shown that the breadth of education of a professional group . . . determines its public influence, its social status, and the esteem in which it is held by others."⁹ One must be circumspect, however, that the breadth of training suggested by some does not become the "mastery of an arbitrarily selected and canonized corpus of classical literature."¹⁰ Rather it should become the vehicle for disclosing more clearly the social complex in which modern man functions.

The peculiar vortex in which business operates offers continual challenge to accounting education. Yet, the burgeoning problems of education for careers in business can only be resolved in a spirit of cooperation—and indulgence—on the part of both education and business. Only in such a climate can the promise of effective development for executive management and professional accountancy be fully realized.

⁹ *Ibid.*, p. 46.

¹⁰ Arnold Toynbee, "Education: The Long View," *Saturday Review*, November 19, 1960, p. 77.

"PRICE-LEVEL" SHOULD BE TAUGHT . . . IN THE INTRODUCTORY COURSE

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Notwithstanding the diversity of content and emphasis in the first-year course among different schools, it should be generally agreed that a major object of the introductory course is to enable the student to acquire significant skills in utilizing financial statements as analytical tools.

Instructors will vary in their *approach* to imparting these skills and they will vary as to the kinds of business problems on which they want their students to concentrate their efforts. But to the extent that the income statement, balance sheet, and funds statement—as analytical tools and not as seemingly anticlimactic end products of a tour-de-force through the book-keeping schemata—are accorded starring roles, all would agree that their advantages as well as *limitations* should be spread upon the record.

Accordingly, it is the plea of this writer that one of the most significant *inherent* limitations of conventionally-prepared financial statements—the misstatement of historical cost (and expense) as a consequence of creeping inflation—should be forcefully demonstrated to all beginning accounting students.

A formidable body of literature, reaching back to at least the early twenties, has in varying degrees of lucidity elaborated upon the problem and possible solutions. Three instances are worth noting.

1. The late Committee on Accounting Procedure of the American Institute of Certified Public Accountants registered its narrowest margin of approval of a promulgated bulletin or section of a bulletin when, in 1953, six of its 20 members (two-thirds approval required) dissented from the majority's recommendation of optional

supplementary statements as sufficient disclosure of the impact of price-level changes.¹ (On the strength of a personal inspection of several hundred 1959 annual reports, this writer uncovered not one such supplementary statement.)

2. Professor Ralph C. Jones' 1955 *Case Studies* reveals that two well-known U. S. corporations overstated their reported earning rates during the forties by 50 per cent through using conventional accounting procedures.

3. The Institute was sufficiently concerned by the problem to conduct a survey of business men and educators only to find that although 74 per cent of the respondents believed that price-level depreciation was sound in principle, only 36 per cent would approve its use if the same rules were not used for federal income tax purposes.²

A resurrection of all of the relevant issues, together with supporting arguments, need not be presented here. It suffices to note that the (usually implicit) assumption of a stable monetary unit is challenged by the facts; an erroneous assumption may cause repercussions along the path of logic toward principles and concepts which are structured on the assumption. Procedures that are developed from these principles and concepts will thus be inadequately suited for the churning out of valid financial data. Hence, the very foundations of the financial statements may be called into question. It is

¹ Accounting Research Bulletin No. 43, Chapter 9, section (a).

² "Opinion Survey on Price Level Adjustment of Depreciation," *The Journal of Accountancy*, April, 1958, pp. 36-43.

here contended that such a chain of causality has in fact occurred, beginning with the defective assumption.

The magnitude of the entire price-level problem is too great to be ignored in the first-year course. It cannot be successfully maintained, moreover, that this matter is germane only to the budding accountant. It is important to anyone who expects to use financial statements—particularly in a day when published statements contain no hint that large profits and doubly large earning rates are creatures of a failure to make explicit correction for year-to-year changes in the potency of the monetary unit. Such financial statements can entrap the unwary, and it certainly should be an object of any introduction to financial accounting to warn the student of misleading accounting data. The potential users of electrical equipment, in a course on how to operate such devices, should be taught how to avoid being electrocuted. The analogy is apt.

That the full implication of the price-level problem may be only imperfectly understood by industry today is suggested by the 1960 annual report of one of the nation's larger chemical firms. In an effort to correct its missated (because of price-level effects) net income, the company developed price-index-adjusted net income data. The adjustments were accomplished by applying a "multiplier" fraction to the net income of each of the nine preceding years, the multiplier containing the current year's index in its numerator and the appropriate prior year's index in its denominator. For three years, using hypothetical data, the adjustments would be as follows:

In an inflationary period, one would expect that net income as conventionally determined is overstated. Yet the above restatement suggests that the opposite is true: the adjusted amounts are, except for the current year's net income, higher than the conventionally-determined figures. Such a computation, by itself, is patently misleading; as it stands, it probably could be labeled as erroneous. Before the above operation can be valid, each of the individual years' determinants (i.e. revenue and revenue deductions) of net income must be recomputed in terms of that year's dollar value. This preliminary computation was not included in the price-level analysis of the company in question. Result: the company, in an apparent bona fide endeavor to assist the readers of its annual report, has instead further muddied the waters.

Most likely, at the present state of accounting development, the price-level issue should be scheduled as one of the last topics in the introductory-course discussion of financial accounting. At the very minimum, the student should be impressed with the nature and import of the problem. Better yet, he should be exposed to possible remedies—with reference to LIFO as a partial, and not unassailable, expedient in this direction.

Some introductory accounting texts have recently added sections of chapters or full chapters on the price-level problem. Unfortunately, a few of the more widely used first-year books have not acknowledged—or have done so only nominally—the importance of an elementary treatment of this problem.

Year	Reported (unadjusted) Net Incomes	Price Indices	Multipliers	Adjusted Net Incomes (rounded to nearest hundred)
1958	\$10,000	100	110/100	\$11,000
1959	12,000	105	110/105	12,600
1960	13,000	110	none	13,000

But the instructor should not weaken his course because the chosen text omits this topic. A supplementary reading, authored by the instructor or selected from the large accumulation of price-level literature, should merit the instructor's serious consideration. The price-level problem perforce is not a small one, and should not be omitted solely because the chosen text omits it. As an aid to the reader, a brief annotated bibliography of some of the more pedagogically-oriented price-level discussions is appended to this article.

The experience at the University of Michigan, with which this writer was recently associated, may assist the reader. The first-year course, populated mostly by sophomores and juniors (special sections are offered to M. B. A. candidates who have had no equivalent accounting education), assigns two to three class hours to price-level problems at the conclusion of the year's work. The text used is *Essentials of Accounting*, by Paton and Dixon. Its final chapter is well-suited for a thorough-going analysis of (1) the nature and significance of the problem and (2) a suggested solution (including a complete numerical illustration.)

For students who pursue further accounting work, the subject is re-introduced and studied in greater depth in the two-course sequence, "Asset Accounting" and "Corporation Accounts and Statements," patterned after the two Paton-and-Paton texts of the same titles.

Students seeking more advanced study at the graduate level find that approximately one-third of a three-hour, seminar-type course, "Problems in Income Accounting," is allocated to an exhaustive investigation of the price-level problem, including substantial exposure to the ever-growing literature on the subject. A term paper on this topic has typically been required of each enrollee.

Each faculty must work out its own

accounting curriculum. The practice of other schools should not bind them in any way. *But the price-level problem will not simply disappear solely because universities and colleges choose to ignore it.* To exclude price-level matters from the first-year course, furthermore, not only misleads non-accountants who probably will never again receive any formal accounting work of a nature that would correct their first impression, but also delays the acceptance of adjusted financial statements (or some other solution). Many accountants who would today urge their clients (and the various regulatory agencies and the courts) to adopt a price-level-adjusted format, know that they will encounter ignorance of the existence of the problem and (because of that) unwillingness to change. The education of non-accountants must start today.

Those non-accountants who would urge that accountants meet the problem squarely are probably all too often confronted by (1) the ignorance of many accountants of the existence of the problem, (2) accountants' indifference to the problem, and/or (3) accountants' innate conservatism. The education of accountants must start today.

Whether the accounting profession will systematically move to correct the price-level defect in financial statements or whether the change will be imposed from without (as the result of an incident which arouses widespread public indignation—similar to that, let us say, which was prompted by the McKesson-Robbins Case) is—to a significant extent—in the hands of accounting faculties.

The instructor of accounting today must lead, not follow.

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"The purpose of this statement of basic concepts and methods is to provide a brief introductory explanation of the problem and of the technique which has been used in making the adjustments. It includes a discussion of the nature of price levels and of index numbers, and some indication of the effects of price-level changes upon individuals and business enterprise." Well-illustrated and clear.

Finney and Miller, *Principles of Accounting—Intermediate* (Prentice-Hall 1958), Chapter 29 (18 pp.).

Good analysis of the problem, with most attention directed at depreciation. Includes excerpt from 1951 Supplementary Statement of AAA Committee on Concepts

and Standards Underlying Corporate Financial Statements.

Huizingh, "Inflation—Present and to be Accounted for." *N.A.A. Bulletin*, April, 1959, pp. 43-57.

A carefully-developed, introspective investigation of the problem and a framework for thinking about a solution. Designed to raise theoretical questions in the reader's mind. No numerical illustrations.

For case material, the instructor should consult: Jones, *Price Level Changes and Financial Statements: Case Studies of Four Companies* (American Accounting Association, 1955); 181 pp.

The companies analyzed are New York Telephone Company, Armstrong Cork Company, The Reece Corporation, and Sargent and Company. Contains painstaking study conducted over several years for each firm, with expository material.

BURDEN RATES—MACHINE HOURS VERSUS DIRECT LABOR HOURS

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In selecting a measure of activity to be used in applying manufacturing burden to product, a typical cost accounting text includes a few brief remarks about direct labor hours, direct labor cost, machine hours, and units of product.

Usually, direct labor hours as a basis is discussed before that of machine hours, and in connection with machine hours many texts include statements somewhat as follows:

"Machine-hours are used where machine activity is the predominant feature of the operation."

"If . . . the shop or factory departments are composed chiefly of machines, the use of the direct labor hour method might lead to an inaccurate costing. This disadvantage is overcome through the use of the machine hour method."

"If there is a variety of work in a department at varied types and sizes of machines, a machine-hour burden rate for each type and size will apply burden to production more accurately than it could be applied by the direct-labor-hour rate."

"The machine-hour basis is similar to the labor hour method and is used where the work is performed primarily on machines. The arguments supporting this method are that since in many concerns a large proportion of the manufacturing overhead costs is made up of depreciation on machines, power, and repairs to machines, overhead can therefore be more accurately charged to production on a machine-hour basis."

It is doubtful whether the above statements clearly make a case for the use of machine hours rather than direct labor hours. Actually, such statements may tend to confuse the issues for the neophyte

rather than clarify them. The fact that machinery is the main factor in production does not necessarily mean that machine hours is a measure of activity which provides more accurate costing than does direct labor hours. For machine hours to be clearly better than direct labor hours, conditions other than those indicated in the statements quoted above need to be present.

In the manufacture of seamless hosiery, for example, the initial operation is that of knitting, which is accomplished on machines. Operators are required to thread the machines, start them, keep them running, and remove the knitted stockings after they are knit. A single employee may operate several machines. In this case, it seems reasonable to conclude that:

1. Machine activity is the predominant feature of this knitting operation.
2. The knitting department is composed chiefly of machines.
3. The conditions as stated do not preclude the department from containing a variety of knitting machines upon which are knit many different types of stockings.
4. The work is being performed primarily on machines.
5. A large proportion of manufacturing overhead costs of the knitting department is made up of depreciation on machines, power, and repairs to machines.

Yet, all these factors are not sufficient in and of themselves to warrant the use of machine hours rather than direct labor hours. Answers to questions such as the following need to be obtained before any reasoned judgment can be made regarding the superiority of machine hours over direct labor hours:

1. Is a single rate for the entire knitting department to be used or will rates be established by machine cost centers which include only homogeneous equipment?
2. Does a single operator run more than one type of machine?
3. Is more than one style of hosiery being produced by a single employee on either homogeneous or heterogeneous equipment?

If the employee operates a single type of machine, although he may operate several such machines, if he produces a single uniform stocking, and if cost center rates on homogeneous equipment are utilized, it makes no difference whether direct labor hours or machine hours are used insofar as the amount of burden charged to product is concerned. Either measure of activity will charge the same total amount of burden to product.

Cost accounting texts, in their discussion of machine hours versus direct labor hours, frequently seem to avoid the real issue. Very often, unless the instructor amplifies the textbook statements considerably, it is likely that the student will not get a satisfactory answer to the basic question, "When is machine hours superior in theory to direct labor hours as a measure of activity for purposes of charging burden to product?"

One of the issues which, in the view of the writer, has not received its fair share of attention is the general superiority for product costing purposes of rates established by machine cost centers which include only homogeneous equipment over a single rate established for a department which includes heterogeneous equipment. If such machine cost center rates are established, the arguments concerning the superiority of machine hours over direct labor hours may disappear.

If a single rate is established for a department which includes heterogeneous equipment, machine hour rates may be less incorrect than direct labor hour rates, but neither will be correct. If one is wrong, both may be wrong. The real difficulty may be caused by an attempt to select a measure of activity for the department as a whole, when the department includes heterogeneous equipment. It may be similar to trying to "cure" a broken arm by giving a shot to ease the pain, rather than by setting the bone.

If rates are established by cost centers, in which only homogeneous equipment is used, the same amount of burden will be applied to product through the use of a direct labor hour rate or a machine hour rate, so long as (1) the ratio of man hours to machine hours remains constant, and (2) the same product is being produced on all the homogeneous equipment being operated by the employee.

It has been argued that machine hours is a better basis than direct labor hours under the following conditions: (1) the process is a relatively continuous one, (2) cost responsibility centers include heterogeneous equipment and burden rates are established by cost responsibility centers. Although the use of a machine hour rate, rather than a direct labor hour rate, may be preferable under these conditions, it does not seem certain that direct labor hours are automatically ruled out as being less accurate than machine hours.

The following situations seem to be clear-cut cases for the use of machine hours rather than direct labor hours:

1. Where the operations are automated, or almost wholly so, and there are few, if any, man hours which can be related to certain machines.
2. Where the ratio of man hours to machine hours does not remain constant in departments of homogeneous equipment.
3. Where an employee or employees as a group operate homogeneous equipment on which different products are being produced. This

situation may be covered under (2) above, since it would seem that man hours devoted to the various products in this case are not proportional to the machine hours.

4. Where an employee or employees as a group operate heterogeneous equipment, with no operator concentrating on only homogeneous equipment or uniform products.

If the various measures of activity generally used for applying burden to product are deemed to be of sufficient importance to require reasonable exploration in the classroom, and the writer believes they are, it is urged that our students be given in the classroom adequate generalizations and specific examples in order that they will have a real "feel" for the situations in which one measure may be clearly superior to another.

It is also suggested that if this kind of treatment should be given the matter by the instructor, it is incumbent upon the textbook writer to be somewhat more thorough in his treatment of this subject. The general situations in which machine hours are superior to direct labor hours are not so lengthy in number that they could not easily be listed.

At the same time, it is hoped that adequate attention will be given to the importance of developing, where practicable, burden rates by machine cost centers which include only homogeneous equipment, rather than a single rate for a department which includes heterogeneous equipment.

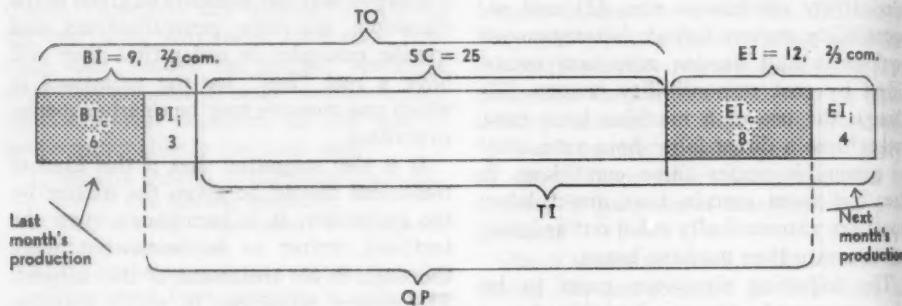
TEACHING EQUIVALENT PRODUCTION WITH A CHART

DON ETNIER

Computation of equivalent units of production seems to be a difficult problem for many students. There are at least two major reasons for this trouble. First, students attempt to memorize formulas and become confused when, in different courses, they are taught different formulas. Second, students often fail to grasp the basic concept of what "equivalent production"

means.

A chart similar to the one presented below solves both these problems. The relationship between the various formulas becomes readily apparent. Equivalent production for the month (or any other period) is suddenly a very real and tangible thing.



KEY

- BI* Beginning Inventory
- SC* Started & Completed
- EI* Ending Inventory
- TI* Transferred In
- TO* Transferred Out
- QP* Equivalent Production
- c* (subscript) Equivalent Complete Units
- i* (subscript) Equivalent Incomplete Units

Looking at this diagram, the student can quickly see that

$$QP = TI - EI_i + BI_i$$

or

$$= TO - BI_c + EI_c$$

That is, the two formulas so often used for equivalent production are simply two different ways of referring to the same area along the line. Both give the same answer (36 in this case). Students may be assigned the problem of deriving other formulas which would give the same answer.

THE ALLOCATION OF COMBINED NET INCOME IN RECIPROCAL AFFILIATIONS

HARRY BUTTNER

Alameda State College

Accounting students often find it difficult to understand the allocation of combined net income of a parent company and its subsidiary to controlling and minority interests when a reciprocal affiliation exists. This difficulty may be attributed, in part at least, to two causes: (1) the problem of accurately defining the symbols employed in the conventional algebraic solution, and (2) selection of a two-step process for computation rather than a single-step process. The purpose of this paper is to point out the limitations in the conventional algebraic solution to combined net income allocation problems in reciprocal affiliations, and to suggest a method designed to overcome these limitations.

Assume that Company P owns 90% of Company S, and Company S owns 20% of Company P. The net income figures for the current year for Companies P and S are \$60,000 and \$20,000 respectively. In the absence of other complications, e.g., intercompany profits or an investment by Company P or Company S in the stock of the other during the current year, the conventional algebraic approach is as follows:

$$P = \$60,000 + .9S$$

$$S = \$20,000 + .2P$$

Solving for the unknowns in the preceding equations, $P = \$95,121.95$ and $S = \$39,024.39$. But how are P and S to be defined? They do not represent allocated portions of the \$80,000 combined net income of Companies P and S. A good explanation of these terms is offered by Moonitz and Staehling, who refer to them as "tentative profit" figures and state that they represent "intermediate steps only,

and have no independent significance."¹

The second step in the conventional algebraic solution involves a reconciliation between the amounts computed for P and S and the combined net income of \$80,000, as follows:

Controlling interest in combined net income:	
80% of \$95,121.95	= \$76,097.56
Minority interest in combined net income:	
10% of \$39,024.39	= 3,902.44
	<hr/>
	\$80,000.00

Modification of the conventional algebraic solution makes possible the use of a one-step process in which the interests of the controlling and minority stockholder groups in combined net income are directly computed.

Let C = Controlling interest in combined net income.

Let M = Minority interest in combined net income.

Symbols C and M are used to designate the interests of the respective stockholder groups in combined net income, while "Company P" and "Company S" refer to the respective corporate entities.

Since Company P owns 90% of Company S, Company P's share of Company S's net income

is 9 times $\left(\frac{.9}{.1}\right)$ that of the minority

stockholders. Therefore,

$$(1) \quad C = .8 \left(\$60,000 + \frac{.9}{.1} M \right)$$

¹ Maurice Moonitz and Charles C. Staehling, *Accounting—An Analysis of Its Problems* (Brooklyn: The Foundation Press, Inc., 1952), Vol. II, p. 307.

Similarly, since Company S owns 20% of Company P, Company S's share of Com-

pany P's net income is $\frac{1}{4} \left(\frac{.2}{.8} \right)$ that of

the controlling interest. Therefore,

$$(2) \quad M = .1 \left(\$20,000 + \frac{.2}{.8} C \right)$$

Solving for C and M in equations (1) and (2), the following results are obtained:

$$\begin{array}{r} C = \$76,097.56 \\ M = 3,902.44 \\ \hline \$80,000.00 \end{array}$$

This modification of the conventional algebraic approach makes unnecessary the determination of "tentative profit" figures, and results in a direct computation of controlling and minority interest in combined net income. The same direct approach may be used to allocate the increase in retained earnings from the date of acquisition in reciprocal affiliations.

PROFESSIONAL EXAMINATIONS

ACCOUNTING PRACTICE

JOHN H. CHAMBERLAIN

THE following problems were prepared by the Board of Examiners of the American Institute of Certified Public Accountants and were presented as the second half of the C.P.A. examination in accounting practice on May 18, 1961.

The candidates were required to solve problems 1 through 4 and either 5 or 6.

The suggested time allowances are as follows:

Problem 1	25 to 35 minutes
Problem 2	30 to 40 minutes
Problem 3	40 to 55 minutes
Problem 4	55 to 80 minutes
Problem 5 or	
Problem 6	40 to 60 minutes

Number 1

White Corporation on the calendar year basis purchased business property on June 30, 1956 for \$100,000 cash. The appraised value of the land was \$10,000 and the remaining life of the building was estimated to be 50 years. Depreciation has been accumulated by use of the straight-line method.

On June 30, 1960 the property was sold for \$150,000 for which payment was received as follows:

1. \$25,000 cash on date of sale.
2. Four noninterest-bearing notes due as follows:

\$30,000-6/30/61
\$30,000-6/30/62
\$50,000-6/30/63
\$15,000-6/30/64

White Corporation elected to record the gain on the sale of the property on the installment method, inasmuch as the collection of the receivable is not reasonably assured.

Required:

- a. Prepare the necessary journal entries and computations to record the sale on June 30, 1960.
- b. Furnish the necessary journal entries and computations to record the collection of the notes at their maturities.
- c. State the sections of the balance sheet in which the account balances at December 31, 1960 should be shown.

Number 2

The A Manufacturing Company presents you with the following information for the year ended December 31, 1960. The firm is primarily engaged in the manufacture of electronics equipment.

Sales.....	\$2,000,000
Cost of sales.....	1,100,000*
Operating expenses.....	400,000
Loss of machinery due to earthquake, not insured.....	50,000
Gain on sale of warehouse acquired in 1952.....	100,000
Retained earnings, January 1, 1960.....	800,000
Dividends paid during 1960.....	80,000
Federal income tax accrual for 1960.....	(to be computed)

* Includes depreciation of \$15,000 for a defense facility based upon a 20-year life. However, this facility, which was constructed in 1958 at a cost of \$300,000, is being written off over a 60-month period for federal income tax purposes.

Required:

Prepare a statement of income and retained earnings for the year ended December 31, 1960. For the purposes of this problem, assume that the nonrecurring items are material in nature. Consideration should be given to income tax implications. Use current corporation income tax rates.

Number 3

ABC Corporation acquired all of the outstanding stock of XYZ Corporation as of June 30, 1960. As consideration for the acquisition, ABC Corporation gave the stockholders of XYZ Corporation \$550,000 and 500,000 shares of previously unissued common stock in exchange for all the outstanding stock of the XYZ Corporation. The ABC Corporation stock had a par value of \$1.00 and a quoted market value of \$2.50 both before and after this transaction.

The balance sheet of XYZ Corporation as of June 30, 1960 was as follows:

ASSETS			
<i>CURRENT ASSETS</i>			
Cash.....	\$120,000		
Accounts receivable.....	240,000		
Inventories.....	210,000		\$ 570,000
<i>FIXED ASSETS</i>			
	<i>Cost</i>	<i>Allowance for Depreciation</i>	<i>Net</i>
Property A.....	\$ 310,000	\$160,000	\$150,000
Property B.....	370,000	170,000	200,000
Property C.....	480,000	180,000	300,000
Property D.....	250,000	150,000	100,000
	<u>\$1,410,000</u>	<u>\$660,000</u>	<u>\$750,000</u>
			<u>\$1,320,000</u>
LIABILITIES			
Accounts payable.....			\$ 470,000
Stockholders' equity			
Common stock—authorized and outstanding			
500,000 shares of \$1 par value.....	\$500,000		
Paid-in capital in excess of par value.....	100,000		
Retained earnings.....	250,000		850,000
			<u>\$1,320,000</u>

All receivables are considered collectible. Inventories are stated at cost which is also equivalent to replacement cost and is not in excess of market. Properties B, C and D have been appraised at \$600,000, \$800,000 and \$200,000 respectively. Goodwill is not considered to be a significant factor in this business.

An engineer of the ABC Corporation estimates that the properties of the XYZ Corporation will have a ten-year useful life from July 1, 1960, with no salvage value at the end of that period. ABC Corporation uses the straight-line method of depreciating its assets.

On July 1, 1960 XYZ Corporation sold property A for \$500,000 and for the six months ended December 31, 1960 reported a net income of \$450,000 which included the gain from the sale of property A and depreciation of \$55,000. The balance sheet of XYZ Corporation at December 31, 1960 was:

ASSETS			
CURRENT ASSETS			
Cash.....		\$390,000	
Accounts receivable.....		355,000	
Inventories.....		260,000	\$1,005,000
FIXED ASSETS			
	<i>Cost</i>	<i>Allowance for Depreciation</i>	<i>Net</i>
Property B.....	\$ 370,000	\$188,500	\$181,500
Property C.....	480,000	204,000	276,000
Property D.....	250,000	162,500	87,500
	<u>\$1,100,000</u>	<u>\$555,000</u>	<u>\$545,000</u>
			<u>\$1,550,000</u>
LIABILITIES			
Accounts payable.....			\$ 250,000
Stockholders' equity			
Common stock.....		\$500,000	
Paid-in capital in excess of par value.....		100,000	
Retained earnings.....		700,000	1,300,000
			<u>\$1,550,000</u>

On January 1, 1961 XYZ Corporation was dissolved and all of its assets were transferred to and its liabilities assumed by ABC Corporation. The transaction is to be accounted for as a purchase and not as a pooling of interests.

Required:

- Prepare the journal entry of ABC Corporation to record its investment in XYZ Corporation as of June 30, 1960, and explain the basis for the value assigned to the investment.
- Prepare the journal entries to record the accounts of XYZ Corporation on the books of ABC Corporation upon dissolution of XYZ and *explain* how the amounts were determined. (Disregard income tax implications.)

Number 4

The Southern Star Motel has been owned by Catron and Johnson on a 50% partnership basis. On April 1, 1961 Catron bought Johnson's interest and dissolved the partnership.

You have been engaged to act as a consultant to the accountant of the Southern Star Motel. The following trial balance was taken from the books of the motel as of March 31, 1961. The books were last closed December 31, 1960.

	Debit	Credit
Cash.....	\$ 630	
Petty cash.....	100	
Prepaid insurance.....	1,360	
Land.....	32,500	
Building.....	75,000	
Allowance for depreciation—building.....		\$ 15,000
Furniture and fixtures.....	30,000	
Allowance for depreciation—furniture and fixtures.....		10,800
Mortgage payable—ABC Life Insurance Company.....		53,000
Capital—Partner—Catron.....		28,265
Capital—Partner—Johnson.....		28,265
Room income.....		17,249
Wages.....	3,545	
Advertising and supplies.....	2,755	
Repairs and utilities.....	2,234	
Office expense.....	114	
Taxes.....	166	
Depreciation.....	3,770	
Interest.....	405	
	<hr/>	<hr/>
	\$152,579	\$152,579
	<hr/>	<hr/>

Upon a careful inspection of details of the settlement between Catron and Johnson you learned that no adjustment for supplies, taxes, interest and insurance had been recorded on March 31, 1961.

The following transactions occurred on April 1, 1961 in the settlement:

1. The partnership bank account was closed by drawing equal checks payable to each partner.

2. Catron paid Johnson \$235 to be applied as follows:

One half of petty cash.....	\$ 50
One half of supplies inventory.....	185
	<hr/>
	\$235
	<hr/>

3. It was necessary for Catron to borrow additional funds on the motel property. Complete refinancing was worked out with the Second National Bank as set forth in the following disbursement statement prepared by the bank:

Amount of loan from the Second National Bank.....	\$84,000
Amount of check from Mr. Catron.....	500
	<hr/>
Total.....	84,500
Less:	
Payoff of mortgage due ABC Life Insurance Company.....	\$56,150
Amount due Johnson.....	\$28,950
Plus one-half unexpired fire insurance premium due Johnson, prorated April 1, 1961 to April 1, 1962; original premium was \$3,180.....	500
	<hr/>
	29,450
Less:	
One-half penalty due ABC Insurance Company.....	\$1,325
One-half interest due ABC Insurance Company from February 6, 1961 to April 1, 1961.....	250
One-half real estate taxes from January 1, 1961 to April 1, 1961.....	150
	<hr/>
Total.....	1,725
Amount due to Johnson.....	27,725
	<hr/>
Total.....	83,875
Less financing costs.....	\$ 625
	<hr/>

4. In addition Johnson accepted a \$30,000 second mortgage payable in equal monthly installments.

5. An appraisal of the motel property indicated the following values:

Land.....	\$ 45,500
Building.....	78,000
Furniture and fixtures.....	18,200
Total.....	<u><u>\$141,700</u></u>

Required:

A worksheet with columns to show the following information:

1. Adjustments necessary to bring accounts into agreement with data as presented showing facts of dissolution agreement.
2. Income statement of the partnership for the period January 1, 1961 to March 31, 1961.
3. Balance sheet as of March 31, 1961.
4. Adjustments for dissolution.
5. Opening balances for Catron's books.

Number 5

The Dearborn Company manufactures product X in standard batches of 100 units. A standard cost system is in use. The standard costs for a batch are as follows:

Raw materials	60 lbs. @ \$.45 per lb.	\$ 27.00
Direct labor	36 hrs. @ \$2.15 per hr.	77.40
Overhead	36 hrs. @ \$2.75 per hr.	99.00
		<u><u>\$203.40</u></u>

Production for April 1960 amounted to 210 batches. The relevant statistics follow:

Standard output per month.....	24,000 units
Raw materials used.....	13,000 lbs.
Cost of raw materials used.....	\$ 6,110.00
Direct labor cost.....	\$16,790.40
Overhead cost.....	\$20,592.00
Average overhead rate per hour.....	\$ 2.60

The management has noted that actual costs per batch deviate somewhat from standard costs per batch.

Required:

Prepare a statement which will contain a detailed explanation of the difference between actual costs and standard costs.

Number 6

The following information pertains to the operations of the General Fund of the X County. Functions of this county government include operating the county jail and caring for the county courts.

Funds to finance the operations are provided from a levy of county tax against the various towns of the county, from the state distribution of unincorporated business taxes, from board of jail prisoners assessed against the towns and against the state and from interest on savings accounts.

The balances in the accounts of the fund on January 1, 1960 were as follows:

Cash in savings accounts.....	\$ 60,650
Cash in checking accounts.....	41,380
Cash on hand (undeposited prisoners' board receipts).....	320
Inventory of jail supplies.....	3,070
Due from towns and state for board of prisoners.....	3,550
General Fund surplus.....	108,970

The budget for the year 1960 as adopted by the county commissioners provided for the following items of revenue and expenditure:

(1) Town and county taxes.....	\$ 20,000
(2) Jail operating costs.....	55,000
(3) Court operating costs.....	7,500
(4) Unincorporated business tax.....	18,000
(5) Board of prisoners (revenue).....	5,000
(6) Commissioners' salaries and expenses.....	8,000
(7) Interest on savings.....	1,000
(8) Miscellaneous expenses.....	1,000

General Fund surplus was appropriated in sufficient amount to balance the budget. At December 31, 1960 the jail supply inventory amounted to \$5,120, cash of \$380 was on hand, and \$1,325 of prisoners' board bills were unpaid. The following items represent all of the transactions which occurred during the year, with all current bills voucherized and paid by December 31, 1960:

Item (1) was transacted exactly as budgeted.	
Item (2) cash expenditures amounted to.....	\$ 55,230
Item (3) amounted to.....	7,110
Item (4) amounted to.....	18,070
Item (5) billings amounted to.....	4,550
Item (6) amounted to.....	6,670
Item (7) amounted to.....	1,050
Item (8) amounted to.....	2,310

During the year, \$25,000 was transferred from the savings accounts to the checking accounts.

Required:

From the above information, prepare a worksheet providing columns to show:

- The transactions for the year. (Journal entries not required.)
- Variances between budgeted and actual revenues and expenditures for the year.
- Balance sheet of the General Fund, December 31, 1960.

Solution to Problem 1

THE WHITE CORPORATION

COMPUTATION OF PROFIT FROM SALE OF PROPERTY:

Cost of property.....	\$100,000
Less value of land included therein.....	10,000
Cost of building.....	90,000
Accumulated depreciation from 6-30-56 to 6-30-60 at 2% per year.....	7,200
Book value of building.....	82,800
Add value of land.....	10,000
Book value of property sold.....	92,800
Sales price of property sold.....	150,000
Realized and unrealized profit from sale.....	\$ 57,200

COMPUTATION OF REALIZED AND UNREALIZED PROFIT:

Collection of Price

Date	Amount	Portion of Collection to Total Price	Amount of Profit To Be Recognized
6-30-60	\$ 25,000	5/30	\$ 9,533
6-30-61	30,000	6/30	11,440
6-30-62	30,000	6/30	11,440
6-30-63	50,000	10/30	19,067
6-30-64	15,000	3/30	5,720
	<u>\$150,000</u>		<u>\$57,200</u>

a. Necessary journal entry at 6-30-60:

Cash.....	\$ 25,000
Accumulated depreciation.....	7,200
Notes receivable.....	125,000
Property.....	\$100,000
Realized profit from sale of property.....	69,533
Unrealized profit from sale of property.....	47,667
To record the sale of property at 6-30-60.	

b. Necessary journal entries to record the collection of the notes:

Date of Entry	Cash (Dr.)	Unrealized Profit (Dr.)	Notes Receivable (Cr.)	Realized Profit (Cr.)
6-30-61	\$30,000	\$11,440	\$30,000	\$11,440
6-30-62	30,000	11,440	30,000	11,440
6-30-63	50,000	19,067	50,000	19,067
6-30-64	15,000	5,720	15,000	5,720

c. At December 31, 1960, the note due at June 30, 1961 should be shown in the "current assets" section of the balance sheet. The remaining notes should be shown in the "other non-current assets" section.

The unrealized profit at December 31, 1960 should be shown as a separate item on the balance sheet below the "current liabilities" section.

Solution to Problem 2

THE A MANUFACTURING COMPANY

COMPUTATION OF PROVISION FOR FEDERAL INCOME TAXES:

	Amount of Provision		
	Current Liability	Deferred Taxes	Total
Applicable to operations:			
Sales.....	\$2,000,000		
Cost of sales.....	(1,100,000)		
Operating expense.....	(400,000)		
Net.....	\$ 500,000	\$254,500	
Additional depreciation on emergency facility.....	\$ 45,000	(23,400)	\$23,400
Total.....		\$231,100	\$23,400
			\$254,500
Applicable to special items:			
Ordinary loss on machinery destroyed by earthquake....	\$ 50,000	(26,000)	(26,000)
Capital gain on sale of warehouse.....	\$ 100,000	25,000	25,000
Total provision for federal income taxes.....		\$230,100	\$23,400
			\$253,500

THE A MANUFACTURING COMPANY

STATEMENT OF INCOME AND RETAINED EARNINGS FOR THE YEAR
ENDED DECEMBER 31, 1960

Sales.....	\$2,000,000
Less cost of sales.....	1,100,000
Gross profit from operations.....	900,000
Less operating expenses.....	400,000
Net income from operations before provision for income tax.....	500,000
Less provision for federal income taxes.....	254,500
Net income from operations.....	245,500

Special items:

Loss on machinery due to earthquake (net of related reduction of federal income taxes in the amount of \$26,000).....	(24,000)
Gain on sale of warehouse (net of related federal income tax in the amount of \$25,000).....	75,000
Net income from operations and special items.....	296,500
Retained earnings, January 1, 1960.....	800,000
Total.....	1,096,500
Less dividends paid.....	80,000
Retained earnings, December 31, 1960.....	<u>\$1,016,500</u>

Solution to Problem 3

A B C CORPORATION

a. Journal entry to record investment in the X Y Z Corporation:

	Dr.	Cr.
Investment in X Y Z Corporation.....	\$1,800,000	
Cash.....		\$550,000
Common stock.....		500,000
Paid-in capital in excess of par value.....		750,000

To record the investment in the X Y Z Corporation for an amount equaling the sum of the market value of A B C Corporation stock plus cash given in exchange for X Y Z Corporation stock.

b. Journal entry to record dissolution of X Y Z Corporation:

	Dr.	Cr.
Cash.....	\$ 390,000	
Accounts receivable.....	355,000	
Inventories.....	260,000	
Fixed assets:		
Property B.....	\$450,000	
Property C.....	600,000	
Property D.....	150,000	1,200,000
Allowance for depreciation:		
Property B.....	22,500	
Property C.....	30,000	
Property D.....	7,500	60,000
Accounts payable.....		250,000
Retained earnings.....		95,000
Investment in X Y Z Corporation.....		1,800,000

To record the transfer of assets and assumption of liabilities of the X Y Z Corporation. Amounts calculated as follows:

(1) It is presumed that cash and accounts payable are properly stated; that all receivables are collectible and that inventories are stated at the lower of cost or market.

(2) Determination of fixed asset values:

Total investment.....		\$1,800,000
Known values at June 30, 1960:		
Current assets.....	\$570,000	
Accounts payable.....	(470,000)	
Property A (value determined by sale).....	500,000	600,000

Remainder—attributable to properties B, C, and D.....

\$1,200,000

Allocation of above remainder to B, C, and D:

	Appraisal Value	Per Cent To Total Appraisal	Allocated Cost
Property B.....	\$ 600,000	37 1/2%	\$ 450,000
Property C.....	800,000	50%	600,000
Property D.....	200,000	12 1/2%	150,000
Total.....	<u>\$1,600,000</u>		<u>\$1,200,000</u>

(3) Allowance for depreciation at January 1, 1961:

	Allowance for Depreciation for Six Months Ended December 31, 1960		Adjustment—Dr. (Cr.)—To Retained Earnings
	At 10% Per Year	Amount Per Books	
Property B	\$22,500	\$18,500	\$ 4,000
Property C	30,000	24,000	6,000
Property D	7,500	12,500	(5,000)
Total	<u>\$60,000</u>	<u> </u>	<u>\$ 5,000</u>

(4) Retained earnings:

Increase in retained earnings since acquisition.		\$450,000
Less:		
Profit on sale of property A.	\$350,000	
Adjustment to allowance for depreciation.	5,000	355,000

Retained earnings to be included by the A B C Corporation. \$ 95,000

Solution to Problem 4

SOUTHERN STAR MOTEL JOURNAL ENTRIES (NOT REQUIRED)

ADJUSTMENTS TO RECORD TRANSACTIONS TO MARCH 31, 1961:

(1) Insurance expense.	\$ 360	\$ 360
Prepaid insurance.		
To adjust prepaid insurance to \$1,000 at 3-31-61	500	500
(2) Interest expense.	300	300
Accrued interest payable.		
To record interest on mortgage for the period	370	370
(3) Taxes.		
Accrued taxes payable.		
To record real estate taxes for the period		
(4) Supplies inventory.		
Advertising and supplies.		
To record supplies inventory at 3-31-61		

ADJUSTMENTS TO RECORD DISSOLUTION ON APRIL 1, 1961:

(5) Catron, Capital.	315	
Johnson, Capital.	315	630
Cash.		
To record closing the partnership bank account	235	235
(6) Johnson, Capital.		
Catron, Capital.		
To record payment by Catron to Johnson for one-half of petty cash and supplies	1,325	235
(7) Johnson, Capital.	1,325	2,650
Catron, Capital.		
Penalty due ABC Life Insurance Company		
To record pre-payment penalty due on mortgage.	53,000	
(8) Mortgage payable—ABC Life Insurance Company.	27,725	
Johnson, Capital.	500	
Accrued interest payable.	2,650	
Penalty due ABC Life Insurance Company.	625	
Financing expense.		
Mortgage payable—Second National Bank.		84,000
Catron, Capital.		500
To record new mortgage on motel property and payment of various charges per disbursement statement		
(9) Johnson, Capital.	\$30,000	\$30,000
Mortgage payable—Johnson.		
To record second mortgage on the motel property taken by Johnson	13,000	
(10) Land.	3,000	
Building.	15,000	
Allowance for depreciation—building.	10,800	
Allowance for depreciation—furniture and fixtures.		
Furniture and fixtures.		11,800
Johnson, Capital.		15,000
Catron, Capital.		15,000
To record appraisal of motel property	14,600	
Goodwill.		
Johnson, Capital.		14,600
To reflect remaining balance in Johnson's capital account as goodwill.		

**SOUTHERN STAR MOTEL
WORKSHEET REFLECTING TRANSACTIONS TO MARCH 31, 1961 AND DISSOLUTION**

ON APRIL 1, 1961						Dissolution Entries, April 1, 1961					
Balance per Books March 31, 1961			Adjustments Dr. Cr.			Income— Statement 3-31-61 to 3-31-61			Distribution of Net Income		
Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash.....	\$ 630					\$ 630			\$ 630 (5)		
Petty cash.....	100					100				\$ 100	
Prepaid insurance.....	1,360					1,000				1,000	
Land.....	32,500					32,500				45,500	
Building.....	75,000					75,000				78,000	
Allowance for depreciation—building.....											
Furniture and fixtures.....											
Allowance for depreciation—furniture and fixtures.....											
Mortgage payable—ABC Life Insurance Company.....	10,000										
Johnson, Capital.....											
Catron, Capital.....											
Room income.....	17,249					\$17,249					
Wages.....	3,545					3,545					
Advertising and supplies.....	2,735					2,385					
Repairs and utilities.....	2,234					2,234					
Office expense.....	114					114					
Taxes.....	166					466					
Depreciation.....	3,770					3,770					
Interest.....	405					905					
Insurance expense.....											
Accrued interest payable.....											
Discount taxes payable.....											
Supplies inventory.....											
Penalty due ABC Life Insurance Company.....											
Financing expense.....											
Mortgage payable—Second National Bank.....											
Goodwill.....											
Total.....	\$152,579					\$152,579			\$152,579		

Solution to Problem 5

THE DEARBORN COMPANY

COMPARISON OF ACTUAL TO STANDARD COSTS OF PRODUCTION FOR 210 BATCHES IN THE MONTH OF APRIL:

	Actual Cost	Standard Cost	Variance—Over (Under) Standard
Material	\$ 6,110.00	\$ 5,670.00	\$ 440.00
Labor	16,790.40	16,254.00	536.40
Overhead	20,592.00	20,790.00	(198.00)
	\$43,492.40	\$42,714.00	\$ 778.40

EXPLANATION OF VARIANCES:

Material:

Unfavorable quantity variance:

Actual materials used	13,000
Standard quantity	12,600
Variance	<u>400</u>

Variance times standard cost (400 lb \times \$.45)..... \$ 180.00

Unfavorable price variance:

Actual cost per pound	\$.47
Standard cost per pound	.45
Variance	<u>.02</u>

Variance applicable to standard quantity of material (\$.02 \times 12,600 lbs)..... \$ 252.00
Variance applicable to materials used in excess of standard quantity (\$.02 \times 400 lbs)..... 8.00 260.00Total material variances..... \$ 440.00

Labor:

Unfavorable time variance:

Actual hours worked	7,920
Standard hours	7,560
Variance	<u>360</u>

Variance times standard cost (360 hours \times \$2.15)..... \$ 774.00

Favorable price variance:

Actual labor cost per hour (\$16,790.40 \div 7,920 hours)	\$ 2.12
Standard cost per hour	2.15
Variance	<u>(.03)</u>

Variance applicable to standard hours (\$.03 \times 7,560 hours)..... \$ 226.80
Variance applicable to hours in excess of standard hours (\$.03 \times 360 hours)..... 10.80 (237.60)Net labor variances..... \$ 536.40

Overhead:

Unfavorable time variance—excess of actual hours over standard hours times standard cost (360 hours \times \$2.75)..... \$ 990.00

Unfavorable capacity variance:

Standard hours for standard output	8,640
Actual hours	7,920
Variance	<u>720</u>

Variance times standard cost (720 \times \$2.75)..... 1,980.00

Favorable budget variance:

Standard overhead for standard output	\$23,760.00
Actual overhead	20,592.00
Net overhead variances	<u><u>(3,168.00)</u></u>

Net overhead variances..... \$ (198.00)

Solution to Problem 6

X COUNTY
GENERAL FUND
TRANSACTIONS FOR THE YEAR ENDED DECEMBER 31, 1960

	Balances, January 1, 1960		Transactions		Budget Variations		Balances, December 31, 1960	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
CASH IN SAVINGS ACCOUNTS.....	\$ 60,650		\$ 1,050 (2)	\$ 25,000 (3)			\$36,700	
CASH IN CHECKING ACCOUNTS.....	41,380		25,000 (3)	28,700 (2)			39,845	
			2,165 (5)					
CASH ON HAND (undeposited prisoner's board receipts).....	320		60 (5)				380	
INVENTORY OF JAIL SUPPLIES.....	3,070		2,050 (4)				5,120	
DUE FROM TOWNS AND STATE FOR BOARD OF PRISONERS.....	3,550				2,225 (5)		1,325	
GENERAL FUND SURPLUS.....		\$108,970			\$25,600 (6)			\$83,370
REVENUES:								
Town and county taxes.....			20,000 (1)	20,000 (2)				
Unincorporated business tax.....			18,000 (1)	18,070 (2)		\$ 70		
Board of prisoners.....			5,000 (1)	4,550 (2)	450		50	
Interest on savings.....			1,000 (1)	1,050 (2)				
EXPENDITURES:								
Jail operating costs.....			55,230 (2)	55,500 (1)				
Court operating costs.....				2,050 (4)			2,320	
Commissioners' salaries and ex- penses.....			7,110 (2)	7,500 (1)			390	
Miscellaneous expenses.....			6,670 (2)	8,000 (1)			1,330	
			2,310 (2)	1,000 (1)	1,310			
EXCESS OF EXPENDITURES OVER REVENUES.....					28,000 (1)	2,400	25,600 (6)	
Total.....	\$108,970	\$108,970	\$173,645	\$173,645	\$29,760	\$29,760	\$83,370	\$83,370

KEY TO TRANSACTIONS (not required):

- (1) To record budgeted revenues and expenditures.
- (2) To record collection of revenues and disbursements from checking accounts.
- (3) To record transfer from savings accounts.
- (4) To adjust for supplies inventory at 12-31-60.
- (5) To reflect collections of prisoners' board.
- (6) To close deficit to general fund surplus.

EXAMINATION IN THEORY OF ACCOUNTS

CHARLES T. ZLATKOVICH

The theory of accounts portion of the May, 1961, Uniform CPA Examination was given Friday, May 19, from 1:30 to 5:00 P.M. Suggested time allotments for questions were as follows:

	<i>Estimated Minutes</i>	<i>Minimum</i>	<i>Maximum</i>
All questions are required:			
No. 1.....	25	35	
No. 2.....	10	15	
No. 3.....	10	15	
No. 4.....	15	25	
No. 5.....	20	30	
No. 6.....	20	30	
No. 7.....	20	30	
No. 8.....	20	30	
 Total for examination...	<u>140</u>	<u>210</u>	

Number 1 (Estimated time—25 to 35 minutes)

You are to select from the alternatives presented, *all* of those which correctly complete each of the following numbered statements. Indicate your selection by placing an "X" in the appropriate column provided on the answer sheet. Note that some of the questions may contain more than one correct statement. Select *every* correct answer because credit will be given for every correct selection; incorrect answers or failure to select the correct answers will be penalized.

1. Consolidated statements are used to present the result of operations and the financial position of:

- a. A company and its branches.
- b. A company and its subcontractors.
- c. A company and its subsidiaries.
- d. Any group of companies with related interests.
- e. None of the above.

2. Consolidated statements are intended, primarily, for the benefit of:

- a. Stockholders of the parent company.
- b. Taxing authorities.
- c. Management of the parent company.
- d. Creditors of the parent company.
- e. None of the above.

3. A consolidated statement for X, Y and Z is proper if:

- a. X owns 100% of the outstanding common stock of Y and 49% of Z; Q owns 51% of Z.
- b. X owns 100% of the outstanding common stock of Y; Y owns 75% of Z.
- c. X owns 100% of the outstanding common stock of Y and 75% of Z. X bought the stock of Z one month before the statement date, and sold it six weeks later.
- d. There is no interrelation of financial control among X, Y and Z. However, they are contemplating the joint purchase of 100% of the outstanding common stock of W.
- e. X owns 100% of the outstanding common stock of Y and Z. Z is in bankruptcy.

4. H is the parent company and would probably treat K as an investment and not a consolidated subsidiary in the proposed consolidated statement of H, J and K if:

- a. H and J manufacture electronic equipment; K manufactures ball bearings.
- b. H and J manufacture ball-point pens; K is a bank.
- c. K has assets of \$1,000,000 and an outstanding bond issue of \$750,000. H holds the bonds.
- d. Same as c, except that outsiders hold the bonds.

e. None of the above.

5. Parent company P has a fiscal year ending June 30, 1961. Subsidiary S's fiscal year ends May 31, 1961. Therefore:

- A consolidated statement cannot properly be prepared for P and S.
- S's May 31, 1961 statement can be used for consolidation with P's June 30, 1961 statement, provided disclosure (or some recognition) is made of any June event which materially affected S.
- If the consolidated statement is permissible, it will be dated June 30, 1961.
- If the consolidated statement is permissible, it will be dated May, 31 1961.
- None of the above.

6. In preparing consolidated statements, elimination is necessary for:

- Net (intercompany) profit or loss on assets remaining within the group.
- Gross (intercompany) profit or loss on assets remaining within the group.
- Net (intercompany) profit or loss on transactions with subsidiaries not consolidated; the investment being carried at cost.
- Gross (intercompany) profit or loss on transactions with subsidiaries not consolidated; the investment being carried at cost.
- None of the above.

7. P owns 90% of the stock of S. W owns 10% of S's stock. In relation to P, W is considered as:

- An affiliate.
- A subsidiary not to be consolidated.
- A minority interest.
- A holding company.
- None of the above.

8. The cost of a parent company's investment in a subsidiary exceeded its equity in the book value of the subsidiary's net assets at the acquisition date. The parent company made the investment because of the subsidiary's ownership of valuable patents which were carried on its books at net cost, \$1,000. In the consolidated statements, the excess of the parent's cost over its equity in the book value of the subsidiary's net assets should be shown as:

- An increase in patents.
- Goodwill.
- Excess of book value over purchase price.
- Surplus from consolidation.
- None of the above.

9. P's cost of investment in M exceeded its equity in the book value of M's net assets at the acquisition date. The excess is not attributable to specific assets. In the consolidated statements, this excess should be:

- Eliminated.
- Allocated proportionately to the subsidiary's fixed assets.
- Shown on the balance sheet as surplus from consolidation.
- Shown on the balance sheet as excess of cost of stock of subsidiary over book value.
- None of the above.

10. P's cost of investment in J was less than its equity in the book value of J's net assets at the acquisition date. The difference is related to the decline in value of J's machinery. In the consolidated statements, this difference should be shown on the balance sheet as:

- A reduction in machinery.
- Capital surplus.
- Surplus from consolidation.
- Excess of book value over purchase price.
- None of the above.

11. Company P purchased the outstanding common stock of S as follows:

10%, January 2, 1960

25%, June 1, 1960

25%, August 1, 1960

40%, September 30, 1960

The fiscal year of each of the companies ends on September 30. S's stock was acquired by P at book value. Consolidated net income for the fiscal year ended September 30, 1960 would include the following earnings of the subsidiary:

- 10% of earnings, January–May 1960.
- 35% of earnings, June–July, 1960.
- 60% of earnings, August–September, 1960.
- 60% of earnings, January–September, 1960.
- None of the above.

12. Company P had 300,000 shares of stock outstanding. It owned 75% of the outstanding stock of T. T owned 20,000 shares of P's stock. In the consolidated balance sheet, Company P's outstanding stock may be shown as:

- 280,000 shares.
- 300,000 shares less 20,000 shares of treasury stock.
- 300,000 shares.
- 300,000 shares footnoted to indicate that T holds 20,000 shares.
- None of the above.

13. Company P and its subsidiary S filed separate income tax returns. P's tax included \$70,000 attributable to profits on sales to S. In preparing consolidated financial statements:

- The entire intercompany profit should be eliminated; taxes need not be adjusted.
- Taxes of \$70,000 should be deferred.
- The intercompany profit should be reduced by \$70,000 before elimination, and taxes of \$70,000 should be deferred.

- Income taxes should be recomputed, and a revised return should be filed.
- None of the above.

14. Combined financial statements are justified for the following:

- A group of subsidiaries not consolidated.
- Corporations engaged in similar or related operations, owned by the same (individual) stockholder.
- A group of companies under common management.
- Any group of companies with related interests.
- None of the above.

15. The preferable method of presenting subsidiaries not consolidated in financial statements is:

- At market value, adjusted through income.
- At market value, adjusted through retained earnings.
- At cost, plus the parent's share of the subsidiaries' net income (or minus the net loss), since acquisition, adjusted annually through income.
- At cost, plus the parent's share of the subsidiaries' net income (or minus the net loss), adjusted annually through retained earnings.
- At consolidated group's equity in net realizable value of assets of subsidiaries not consolidated.

16. It is acceptable accounting treatment to carry investments in subsidiaries not consolidated at cost:

- Under no circumstances.
- With dividends included in income as received.
- Less provision for any permanent material impairment of the investment.
- If there is disclosure, by footnote or otherwise, of the equity of the con-

solidated group in the net assets of subsidiaries not consolidated.

- None of the above.

17. "Negative goodwill" is:

- Not acceptable terminology for statement purposes.
- Subtracted from goodwill, if any, for statement purposes.
- Synonymous with surplus from consolidation.
- Also known as excess of book value over purchase price.
- None of the above.

18. Company P owns 75% of the outstanding common stock of S. During 1960, P's profits on its transactions with S amounted to \$50,000. The elimination for intercompany profit is:

- Not necessary.
- \$50,000.
- \$37,500.
- Allocated between Company P and the minority stockholders.
- None of the above.

19. P and its subsidiaries, T and V, have issued combined statements for a number of years. In connection with a proposed bank loan, P has been requested to present a statement to the bank which will indicate P's financial position at December 31, 1960. The following will supply the desired information:

- A copy of the consolidated statement at December 31, 1960.
- A copy of P's financial statement at December 31, 1960 on which the investments in T and V are reported at the current carrying value.
- A copy of the consolidated statement and of the separate parent company (P) statement, both at December 31, 1960.
- A copy of the consolidated statement at December 31, 1960, modified so that one column is used for P and other columns for T and V.

e. A copy of separate financial statements of P, T and V as of December 31, 1960.

20. The stockholders of S sold all of its common stock, 1,000 shares, to Company P, receiving in return 5,000 shares of Company P stock. On the day prior to the sale, P stock sold for \$40 per share; S stock sold for \$195 per share. P stock has a par value of \$20 per share. S stock has a par value of \$50 per share.

The investment by P may be recorded on its books at:

- \$200,000, only.
- \$195,000, only.
- \$100,000.
- \$50,000.
- Either \$200,000 or \$195,000.

(See chart on next page for answer 1)

Number 2 (Estimated time—10 to 15 minutes)

The president of a small factory has come to you for advice. His bookkeeper tells him each year that the business has been just about breaking even. He said that the inventories, receivables and payables have not varied much since the corporation was organized ten years ago but that cash has been constantly increasing. He thinks that the business has been making money and that there is an error. The president stated there has been no sale of assets, refinancing of indebtedness, or change in corporate structure such as sale of stock.

Required:

- Present briefly the *explanation* that you would give the president for the continued increase in cash.

Answer 1

	a	b	c	d	e
1.			X		
2.	X			X	
3.		X			
4.		X			
5.		X	X		
6.		X			
7.			X		
8.	X				
9.				X	
10.	X				
11.	X	X	X		
12.	X	X			
13.		X			
14.	X	X	X		
15.			X		
16.		X	X	X	
17.	X	X	X	X	
18.		X			
19.			X	X	
20.					X

b. Give examples of transactions that would illustrate your explanation.
 c. What financial statements would you prepare for the president?

Answer 2

a. Many of the expenses of a business do not involve the simultaneous disbursement of cash or incurrence of a current liability. Expenditures made years ago may result in expense charges in current and future income statements. These expense charges reduce net income but do not correspondingly reduce cash. It is even possible for a business to show losses as a result of such

charges while at the same time its cash is increasing.

b. Examples of expense charges decreasing profits but not correspondingly decreasing cash include:

1. Depreciation or depletion of property.
2. Consumption of supplies and prepaid expenses.
3. Amortization of intangibles or deferred charges.
4. Setting up or increasing valuation reserves with offsetting charges to current operations.
5. Accrual of liabilities for such things as product warranties. These have the effect noted only so long as the result is a net increase in the liability during the period.

c. Statements which would assist the president in understanding the phenomena he has observed would include primarily (1) Source and application of funds statements and (2) Cash flow statements. Income statements and balance sheets in comparative form should also prove helpful.

Number 3 (Estimated time—10 to 15 minutes)

Cal-York Airline is converting from piston-type planes to jets. Delivery time for the jets is three years during which period substantial progress payments must be made. The multimillion dollar cost of the planes cannot be financed from working capital; Cal-York must borrow funds for the payments.

Because of high interest rates and the large sum to be borrowed, management estimates that interest costs in the second year of the period will be equal to one third of net income before interest and taxes, and one half of such income in the third year.

After conversion, Cal-York's passenger-carrying capacity will be doubled with no increase in the number of planes, although the investment in planes would be substantially increased. The jet planes have a seven-year service life.

Required:

Give your recommendation concerning the advisability of capitalizing the interest during the conversion period. Support your recommendation with reasons and suggested accounting treatment. (Disregard Federal income tax implications.)

Answer 3

The interest charges involved here are (1) material, and (2) definitely related to an expenditure for future rather than present benefits. Interest charges are ordinarily expensed as incurred because presumably it is the current period which benefits from the borrowing and the expense is a function of time. In this instance however the borrowing is undertaken to secure jetliners which will produce only future revenue, and it is proper to capitalize the interest.

Since the jetliners will produce future revenue, future periods should absorb all costs incident to their purchase. Interest on money borrowed to make progress payments is one of these costs and is so material it would distort income if expensed currently. The interest is also material in relation to cost of the planes.

When the jetliners are placed in service, the capitalized interest should be expensed. If the interest charges were added to cost of the jetliners, depreciation expense would be increased. If instead the interest were set up in a separate deferred charge account, amortization of this balance over the life of the jetliners would be appropriate.

Number 4 (Estimated time—15 to 25 minutes)

You have been requested by the newly formed E-Z Construction Company to assist them in determining the desirable method of accounting for income from operations. The company undertakes the long-term, large-scale type of construction and is engaged with only two or three contracts at one time.

Required:

- Briefly describe the desirable method of accounting for income from operations. Give the advantages and disadvantages of the method selected.
- Given an alternative method of accounting for income and state why this method is not preferred under the circumstances.

Answer 4

a. Primarily because of the limited number of long-term contracts in process at one time, income here should be related to progress rather than to completions. Under the "percentage of completion" or "production" method a portion of the expected net income from each contract is taken up in each period the contract advances toward completion. The measure of progress toward completion is sometimes based on engineers' or architects' estimates, sometimes on cost. When cost is the basis the formula used is:

$$\begin{array}{r} \text{Costs incurred to date} \\ \hline \text{Total costs (past, present, and expected)} \\ \times \text{Expected profit.} \end{array}$$

If the contract in question was also in progress in a prior period care must be taken not to recognize earlier profits a second time.

The advantages of the "percentage of completion" method are that it recognizes revenue in relation to effort expended

during the period and avoids peaks and valleys of income that would attend alternately bunched and scattered completions. Although it results in earlier recognition of income for tax purposes, the method has the possible advantage of reducing overall taxes by avoidance of peak excursions into higher surtax brackets.

Its disadvantages relate chiefly to future uncertainties. The costs yet to be incurred may be affected by unforeseeable price changes, accidents, and the like. Contracts on which some profit has already been recognized may turn out to produce losses; this could result in serious distortion of successive income statements. A minor disadvantage is the added record keeping effort necessitated.

b. The "completed contract" method is an alternative. It recognizes income from a contract only upon its completion. In the instant case, with few contracts in progress at once, completions are likely to bunch in some periods and not occur in others. This would result in severely fluctuating net income and fail completely to measure actual performance within some periods. If a large number of jobs were in progress at any given time, completions should occur fairly evenly; in this case the objections cited are, for practical purposes, overcome.

Number 5 (Estimated time—20 to 30 minutes)

At year end the following accounts appeared in the general ledger of the Lucien Corporation:

1. Reserve for Service Guarantees.
2. Reserve for Plant Depreciation.
3. Reserve for Foreign Earnings.
4. Reserve for Replacement of LIFO Inventory.

Required:

- a. Describe briefly the nature and pur-

pose of these accounts. Indicate in which sections of the balance sheet these accounts should be displayed.

b. Give an alternative title for any of the accounts which you believe are improperly titled. Indicate briefly your reasons for the title changes.

Answer 5

a. 1. Reserve for Service Guarantees reflects the obligation of the company to service and repair products it has sold or leased. Revenue has presumably already been recognized and in an effort to match against this revenue the cost of service (which was an inducement for the customer to buy), an expense account was charged, and this reserve account was credited. As services called for are rendered, their cost will be charged to the reserve account. The balance is a liability, at least part of which is current.

2. Reserve for Plant Depreciation reflects the cumulative write down of tangible fixed assets due to physical depreciation and ordinary obsolescence. It is the estimated portion of original cost that has expired and has been charged off. It is a contra-asset account which enables both original cost and the extent of charge off of depreciable property to be shown.

3. Probably Reserve for Foreign Earnings reflects the fact that Lucien has a foreign branch or subsidiary which has operated profitably subsequent to formation or acquisition and has not transferred all of its earnings home and may be unable to do so. In such case the reserve should preferably be shown in the capital section of the balance sheet. It is possible the account was set up to reduce the carrying value of the investment in the foreign operation after exchange rate fluctuations occurred; in such case it would be shown as a contra-asset account.

4. Reserve for Replacement of LIFO Inventory would indicate that Lucien is

using LIFO pricing and has dropped its inventory below a normal level or has exhausted it and is faced with the prospect of restoring inventory at higher cost than the usual carrying value. A balance in this account would be shown under current liabilities. The account would be debited with the excess over normal carrying value when replacement occurs. When the account was set up, the offsetting debit increased cost of goods sold in the amount of the excess of current costs over "base stock" value.

b. There is a trend towards the abandonment of the term "reserve" except where it is used to title accounts reflecting appropriated or unrealized capital. Specifically the account title "Reserve for" is losing favor when used in conjunction with valuation accounts or estimated liability accounts. This trend reflects the influence of recent authoritative pronouncements which pointed out that the everyday meaning of "reserve" is at variance with these usages. In popular parlance a reserve connotes cash or property held for some special purpose. Since this meaning is not at variance with surplus reserves, most authorities sanction use of the term reserve here. It would follow that Reserve for Service Guarantees should be retitled Estimated Liability for Service Guarantees, that Reserve for Plant Depreciation should be changed to Accumulated Depreciation, and that Reserve for Replacement of LIFO Inventory should be retitled Excess of Replacement Cost over LIFO Cost of Basic Inventory Temporarily Liquidated. If the nature of the Reserve for Foreign Earnings is as first indicated, no change in title is needed for this account.

Number 6 (Estimated time—20 to 30 minutes)

You are engaged in the audit of the Willis Corporation which opened its first

branch office in 1960. During the audit the Willis president raises the question of the accounting treatment of the branch office operating loss for its first year, which is material in amount.

The president proposes to capitalize the operating loss as a "starting-up" expense to be amortized over a five-year period. He states that branch offices of other firms engaged in the same field generally suffer a first-year operating loss which is invariably capitalized, and you are aware of this practice. He argues, therefore, that the loss should be capitalized so that the accounting will be "conservative"; further, he argues that the accounting must be "consistent" with established industry practice.

Required:

a. Discuss the president's use of the words "conservative" and "consistent" from the standpoint of accounting terminology. Discuss the accounting treatment you would recommend.

b. What disclosure, if any, would be required in the financial statements?

Answer 6

a. "Conservative" means that among acceptable accounting alternatives the one is chosen which recognizes the greatest present reduction of income and which carries forward the lowest value. Clearly what the president is proposing is not conservative in this sense. On the contrary he is refusing to recognize a loss that has been sustained and desires to carry forward this loss as though it had some kind of future benefit, which it clearly does not.

"Consistent" means that accounting practices this period are the same as in the past and that some recognized standard procedure is consistently being followed. Since this is the first year of the branch's operations, there can be no consistency with the past; there are no other branches to parallel in this company. It is generally

desirable that the accounting practices of a specific entity be consistent with or parallel to those of other entities in the same industry. However, in this instance if industry practice is as the president describes, it is undesirable and consistency with it is no virtue. On both counts his position is incorrect.

Carrying forward the loss as if it were an asset implies it has some future benefit; clearly this is not the case, and it should be charged to income in the period it occurred.

b. The loss should be set out clearly in the income statement or surplus statement, preferably the former. The loss is described as material in amount; therefore if the client insisted on capitalizing it, a qualified opinion would have to be given.

Number 7 (Estimated time—20 to 30 minutes)

The Board of Directors of a mining corporation, foreseeing a three to five-year period of reduced operations, has decided to invest its liquid funds during this period in a diversified list of common stocks (all listed on the New York Stock Exchange) rather than pay as much in dividends as is legally permissible. The directors further decide to include such investments in their annual financial statements on a current market value basis.

Required:

- a. What advantage may be attributed to this method of reporting such investments?
- b. What objections might be offered to this method?
- c. How should these securities be presented in financial statements?

Answer 7

- a. From a balance sheet standpoint the use of market value shows how much the corporation could realize on the invest-

ments even though there is no intention of selling them soon. The balance sheet is put on a current basis and reflects, to some degree, the effects of price-level changes. From an income statement standpoint the method puts gains or losses from changes in value in the years of occurrence rather than loading them entirely into the year of disposition. In view of the materiality of the investment both investors and management would find the information significant.

b. Cost is the usual basis of valuing long-term investments under generally accepted accounting principles; hence this is a departure. Significant losses of value are sometimes recorded for long-term investments held, especially if the value decline is believed not to be temporary. Use of a separate valuation account would be preferable so as to preserve cost data. Significant gains in value are ordinarily not recorded though they may be disclosed parenthetically or by footnote. Market value seems particularly inappropriate here because there is no immediate intention to sell and quite possibly the values will change materially before the investments are sold. Recording of market values would cause the books to reflect gains or losses which had not been realized.

c. It would be preferable to present these investments at cost with parenthetical or footnote disclosure of market values. Because there is no immediate intention to sell, despite their marketability, the securities are not current assets; they should be shown under a caption such as Investments and Funds.

Number 8 (Estimated time—20 to 30 minutes)

- a. In some instances accounting principles require a departure from valuing inventories at cost alone. Determine the proper unit inventory price in the following cases:

	Cases				
	1	2	3	4	5
Cost.....	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00
Net realizable value.....	1.30	2.05	1.80	2.40	1.90
Net realizable value less normal profit.....	1.10	1.85	1.60	2.20	1.70
Market (replacement cost).....	1.20	2.10	1.85	2.15	1.60

b. Assume the item in Case 5 is also in stock at the end of the next fiscal period and the four values are respectively \$2.00, \$1.90, \$1.70 and \$2.05. What would be the proper unit price?

c. Normally inventory values include cost of freight in. Under certain circumstances, however, these costs are excluded from determination of inventory cost.

- (1) Indicate the circumstances under which this exclusion might be practiced and comment on the propriety of the exclusion.
- (2) Without discussion, list other costs which might similarly be excluded from inventory cost.

Answer 8

- a. 1. \$120 2. \$2.00 3. \$1.80 4. \$2.00
5. \$1.70
- b. \$1.70

c. (1) While freight in costs normally ought not to be excluded, if the amount excluded is about the same at the end of any series of fiscal periods, the exclusion has little effect on the income statements of all periods except the first. The exclusion may be inconsequential from a balance sheet standpoint when the freight cost is immaterial. This is especially true when inventories are valued at cost or market, whichever is lower, because often a value

lower than cost would be used.

Freight costs are sometimes incurred because of inefficiencies; where this is the case they should be excluded from inventory cost. Inter-branch shipments of goods occasioned by poor inventory planning, and special handling charges occasioned by an inadequate inventory control system which allowed stocks to become depleted would be examples of freight costs of this type.

Under LIFO or FIFO pricing methods it is frequently possible to keep unit inventory values in round amounts so long as freight costs are not added to the unit prices. For this practical reason freight costs are sometimes treated as a period cost.

The amount of freight costs to be excluded may be relatively small so freight costs would be treated as described in the previous paragraph. Relative to the cost of a shipment of jewels, freight costs would be negligible and not worth allocating to the individual items; relative to a shipment of bulky, low value goods, freight costs might be so material they would have to be assigned to the goods. Judgment must be used to determine when the expense of making an allocation is greater than the benefit derived because of the relative immateriality of the amount.

(2) Other costs which might similarly be excluded include:

- a. Insurance in transit.
- b. Receiving and inspection costs.
- c. Duties and custom charges.
- d. Purchasing department costs.
- e. Storage and demurrage.

AMERICAN
ACCOUNTING
ASSOCIATION

NEWS

EDITOR'S NOTE

This section of *THE ACCOUNTING REVIEW* is designed to bring more information about the Association and its activities to the general membership. Any thoughts or suggestions you may have or any news items for subsequent issues should be forwarded to R. K. Mautz, 218 David Kinley Hall, University of Illinois, Urbana, Illinois.

NAA OFFERS BULLETINS TO STUDENTS

The NAA plans to continue its program of supplying copies of the technical sections of the *NAA Bulletin* to students. The practice was authorized on October 10, 1959, when the Executive Committee of the National Association of Accountants established a Student Bulletin Service in order that students of accounting would be able to obtain the technical section of the *NAA Bulletin* for use in conjunction with their classroom work.

Under this program the NAA agrees to supply the technical section (Section 1) of the *NAA Bulletin* as issued for the eight months from October to May inclusive at a price of \$2.00 to any student receiving residence instruction in accounting, providing the request for such service is approved in writing by his instructor who is a member of the NAA. Copies of "NAA Research Reports" and "NAA Accounting Practice Reports" published during the eight-month period will be sent with the

NAA Bulletin as a part of this service.

Because this program is new and the NAA has not had enough experience to forecast the number of students who may apply for the Student Bulletin Service or the date when requests will be received, assurance cannot be given that the eight issues supplied will be those for October 1961 to May 1962 inclusive. The NAA reserves the right where copies of any issue are exhausted to substitute the most recent issue in stock prior to the October 1961 issue. All requests dated January 31, 1962, or earlier, will be accepted and issues published prior to the date of receipt of the request will be mailed at one time.

Members who desire to call the attention of their students to this service should write the National Association of Accountants, 505 Park Avenue, New York 22, New York, for further information and a supply of request forms. Please indicate the number of request forms desired.

AUSTRALIAN TEACHERS OF ACCOUNTING FORM ASSOCIATION

The full-time teachers of accounting in universities in Australia have formed an Australian Association of University

Teachers of Accounting. Its objectives are to further the advancement of education in accounting, to encourage research in ac-

counting, to develop media for the discussion of accounting, to promote closer relations among university teachers and others who are interested in the development of accounting.

Present membership exceeds 40. All universities in which comprehensive accounting courses are offered in the Faculties of Economics or Commerce are represented; they are the Universities of Adelaide, Melbourne, New South Wales, Queensland, Sydney, and Tasmania.

The officers are President R. J. Chambers (U. of Sydney), Vice Presidents L. Goldberg (U. of Melbourne), R. L. Mathews (U. of Adelaide), and E. B. Smyth (U. of New South Wales). A. A. Forster (U. of New South Wales) is Secretary.

Communication among members is promoted by a mimeographed News Bulletin which it is intended to issue three times yearly.

SUMMER GRADUATE PROGRAM IN PUBLIC SCHOOL FUND ACCOUNTING

A three week program in Public School Fund Accounting was offered at the Michigan College of Mining and Technology in July. It was designed to serve those connected with public school fund accounting in any capacity and included guest lecturers from the Michigan Department of Public Instruction, the Association of School Business Officials of the United States and Canada, the Michigan School Business Officials, the Michigan Association of CPAs, the Michigan Association of

School Administrators, and the Office of Education, Washington, D.C.

Sam B. Tidwell served as director of the program. Cooperating with Michigan College of Mining and Technology in offering this program were the Michigan Department of Public Instruction, the Michigan Association of Certified Public Accountants, the Michigan Association of School Administrators, and the Michigan School Business officials.

TULANE TAX INSTITUTE

The Eleventh Annual Tulane Tax Institute will be held in New Orleans on

October 25-27 at the University Center, Tulane University.

LOUISIANA STATE UNIVERSITY OFFERS CPA REVIEW COURSES

Louisiana State University's College of Business Administration, through the Adult Education facilities of the General Extension Division, will offer CPA review sessions in four distinct courses as follows:

Accounting Theory October 2-7, 1961

Auditing October 23-28, 1961
 Commercial Law October 30-November 4, 1961
 Accounting Practice October 9-21, 1961

These courses are offered annually and are taught by members of the Accounting

Faculties of the College of Business Administration. Information concerning fees, housing, and registration can be obtained by writing or calling the General Extension division at Louisiana State University.

AAA FELLOWSHIPS

Mr. Melvin H. Voth of the University of Kansas has been awarded an AAA Fellowship for the academic year 1961-62. Gerald L. Cleveland, announced as an award winner in the July issue of *THE ACCOUNTING REVIEW*, did not accept the fellowship offered to him.

David O. Jenkins, named as a successful candidate for a fellowship in the July issue, is serving as a member of the faculty of Los Angeles State College while pursuing graduate work at the University of Southern California.

1962 EXECUTIVE COMMITTEE

Elected at the annual business meeting of the American Accounting Association held in Austin, Texas on August 30 were six new officers who join with five members of the 1961 executive committee to make up your executive committee for 1962.

President	Raymond C. Dein	University of Nebraska
President-Elect	Walter G. Kell	University of Syracuse
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Vice President	W. E. Dickerson	Ohio State University
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Past President	Charles J. Gaa	Michigan State University
Past President	Martin L. Black, Jr.	Duke University

ASSOCIATION NOTES

(EDITOR'S NOTE: Please address communications concerning Association Notes to the editor of THE ACCOUNTING REVIEW, 218 David Kinley Hall, Urbana, Illinois.)

CALIFORNIA

Los Angeles State College

Warren C. Bray has been appointed head of the Accounting Department.

CANADA

Queen's University

L. G. Macpherson, President of the Association of Canadian Schools of Commerce and Business Administration, reports that a number of topics of particular interest to teachers of accounting were included on the program of the fifth annual conference of the association held June 12 and 13 at Sir William George University, Montreal. They were "The Function of Profits" by Dr. Brian Dixon (Queens U.), "Evaluation of the Accounting Provisions of the Companies Acts" by Prof. Michael Zin (Assumption U., Windsor), "The Concept of Return on Investment" by Prof. C. L. Mitchell (U. of British Columbia), a discussion of doctoral program in Business Administration by Dr. R. K. Ready (U. of Western Ontario), and a discussion of problems of research in business by Prof. Ralph Harris (U. of Manitoba).

INDIANA

Indiana University

Leon E. Hay has been promoted to Professor. He recently returned from a semester's leave of absence in Guatemala where he taught cost accounting to business executives. Charles H. Spencer will be on leave during the 1961-62 academic year serving as Visiting Professor of Accounting at the Graduate School of Business and Public Administration, Cornell University.

Stanley A. Pressler was coordinator of the 19th Annual Institute on Hospital Accounting held at Indiana University in conjunction with the American Association of Hospital Accountants July 16-22. Samuel Frumer and L. Van Seawell conducted courses in hospital accounting for the Institute.

ILLINOIS

Northern Illinois University

John E. Dwyer is serving as a member of the Study Conference Committee of the Illinois Society of CPAs.

MICHIGAN

University of Michigan—Flint College

Robert H. Cojeen has been promoted to Professor. William A. Paton, Jr. is leaving the faculty to accept a position at Florida State University.

MONTANA

Montana State University

The first Montana Institute on Accounting sponsored by the School of Business Administration was held June 14-16. Eric L. Kohler was the banquet speaker. Donald J. Emblem and Dorsey E. Wiseman spoke on profit planning for small business. Jack Kempner presented a paper, "Development of Accounting and Auditing Standards."

Donald J. Emblem will attend a Ford Foundation seminar in August on "New Developments in Business Administration" at Williams College.

NEW YORK

Cornell University

Joseph E. Hampton, Associate Profes-

sor, has resigned to accept a position as Professor of Accounting and Director of Accounting Program, American University Washington, D. C.

Harold Bierman has been promoted to Professor. David A. Thomas has been appointed Acting Dean of the Graduate School of Business and Public Administration.

OHIO

University of Cincinnati

Donald F. Pabst has completed his work for the Ph.D. at Ohio State University and will join the University of Cincinnati as an Assistant Professor in September.

PENNSYLVANIA

Pennsylvania State University

G. Kenneth Nelson has been elected to a two-year term as a member of the Board of Directors of the National Association of Accountants. Orville Kiester has joined the staff as a Lecturer and John Yeakel as an Instructor. Anthony J. Mastro has resigned to accept a position at Albion College.

The Fifteenth Annual Tax Institute was held in May. The Eighth Annual Study Conference held in cooperation with the Pennsylvania Institute of CPAs was held in September.

University of Pennsylvania

Adolph Matz has returned from sabbatical leave. He served as a Visiting Professor of Business Administration during the summer semester at the Free University of Berlin.

Robert G. Cox has been promoted to Professor. Samuel R. Sapienza has been promoted to Associate Professor.

Rufus Wixon, Chairman of the Accounting Department, is on leave of absence while serving as visiting professor at IMEDE, Management Development Institute, Lausanne, Switzerland. Richard S.

Woods has been named Associate Chairman of the Accounting Department and will act as chairman during Professor Wixon's absence.

University of Pittsburgh

Assistant Professor James R. Ombs has resigned to accept a position as Associate Professor at Los Angeles State University in September.

TEXAS

Baylor University

H. Vader Streetman has taken a leave of absence to pursue graduate work and serve on the faculty of the University of Southern California.

Pan American College

Robert S. See resigned as Director of the Division of Business Administration and Commerce to accept a position as administrative assistant to the partners of the firm of Otis Smith & Company, CPAs. He will serve as management advisor to the firm and assist in the development of the firm's management services division.

The University of Texas

Hershel Anderson completed the requirements and received the Ph.D. degree from the University of Illinois in June. Jim G. Ashburne and Ben B. Barr are on leave during the summer session under grant from the University Excellence Fund to develop and produce visual aid projections for use in an intermediate managerial accounting course for non-accounting majors.

James W. Giese, who expects to complete the requirements for a Ph.D. degree at the University of Illinois this year, will join the faculty as an Assistant Professor in September. James T. Hood, who expects to receive the Ph.D. degree from Louisiana State University this year, will also join

the faculty as an Assistant Professor in September.

Robert E. Seiler attended a Ford Foundation faculty seminar on current developments in business administration at Williams College from July 28 to August 26. C. Aubrey Smith is working under a research grant writing a history of the College of Business Administration.

VIRGINIA

University of Virginia

A. W. Patrick, Visiting Professor of Accounting, will return to the University of Tennessee in September. Joseph E. Gibson has been promoted to Associate Professor. Ray C. Hunt, Jr. returned to the staff in September after working for the doctorate in New York and working with Price Waterhouse & Co.

WASHINGTON

Washington State University

Theodore R. Saldin and Eldon S. Hendriksen have been promoted to Professor. W. Rogers Higgins has joined the staff as a Lecturer.

WISCONSIN

University of Wisconsin

Edward J. Blakely, Jr., who recently received his Ph.D. degree from the University of Texas, was promoted to Associate Professor. James B. Bower was recently elected President of the Madison Chapter of the Wisconsin Society of CPAs.

John A. Tracy received his Ph.D. degree from the University of Wisconsin and has joined the staff of the University of California at Berkeley as an Acting Assistant Professor. William R. Welke has been appointed an Instructor.

AM
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 Leonard Morrissey..... Dartmouth College
 Howard J. Mullin..... Saint John's University
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 Charles L. Savage..... Saint Francis College
 David Solomons..... University of Pennsylvania
 Zenon Zannetos..... Massachusetts Institute of Technology

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 Vernon H. Upchurch..... University of Oklahoma

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WENDELL P. TRUMBULL, *Editor*

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Accounting

ARTHUR ANDERSEN & CO., *The AICPA Injunction Case* (Chicago: Arthur Andersen & Co., 1960, 309 pp.).

The book is the first volume of what is to be a series of Cases in Public Accounting Practice. It consists almost entirely of court documents and legal papers without editorial comment.

In the year 1959, the American Institute of Certified Public Accountants was involved in litigation regarding the interpretation of ARB No. 44 (revised). The Appalachian Power Company, Ohio Power Company, and Indiana & Michigan Electric Company sought to enjoin the AICPA from the issuance of a proposed letter interpreting ARB No. 44 (revised) "to the effect that credits arising from provisions for deferred income taxes may not in accordance with generally accepted accounting principles be included in the stockholders' equity section of the balance sheet unless it followed the usual 'exposure' procedure, allowed a waiting period of at least 60 days, and otherwise complied with the practices and procedures of the Institute and the Committee with respect to the publication of Accounting Research Bulletins."

When the bulletin in question was issued in July, 1958, it took no definite position as to the proper treatment of accounts for deferred taxes on corporate balance sheets. In April, 1959, the controversial letter of interpretation was prepared. The three plaintiffs, who carried an aggregate of more than \$65,000,000 in accounts for deferred federal income taxes in the stockholders' equity section of the balance sheet, sought to enjoin the issuance of the letter. Among other reasons, they alleged that its publication would cause the financial community to question the continued inclusion of these credits in the surplus section with the result that their dealings with this group would be severely impaired.

The plaintiffs obtained from the United States District Court a temporary restricting order. Shortly thereafter the application for injunction was denied. The plaintiffs appealed and were granted a stay. On June 17, 1959, the United States Court of Appeals affirmed the decision of the lower court and vacated the stay. Among other things, the court stated, "We think the courts may not dictate or control the procedures by which a private organization expresses its honestly held views. Defendants' action involves no breach of duty owed by them to the plaintiffs. On the contrary, every professional body accepts a public obligation for unfettered expression of views and loses all right to professional consideration, as well as all utility, if its views are controlled by other criteria than the intellectual conclusions of the persons acting. Absent a showing of actual malice or its equivalent the courts would be making a great mistake, contrary indeed to their own ideals and professions, if they assumed to restrict and denigrate this widely recognized and assumed professional duty."

The litigation had the practical effect of upholding the authority of the Institute to express opinions on accounting principles.

As the preface points out, there has long been a need

for a source to which professors, practitioners, and students could turn for the record of principal cases that have established important precedents in the practice of public accounting.

The publishers indicate that a copy of this volume will be furnished without charge to the libraries of colleges and universities that offer any courses in accounting.

The publishers are to be commended for making this most worthwhile contribution to accounting literature. It is fervently hoped that this publication will be the first of a continuing series.

WILLIAM KOPTA
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New York University

HOMER A. BLACK and JOHN E. CHAMPION, *Accounting in Business Decisions: Theory, Method, and Use* (Englewood Cliffs: Prentice-Hall, Inc., 1961, xvii, 812, \$7.95.)

This is a decidedly sound first-year accounting text. Its slant is towards decision making. It is interesting to observe the decisions which were made in confining this approach between two covers.

Decision making suggests statistical controls and investment decisions. Investment decisions are treated at length in this text in material on long-range planning and capital budgeting. Statistical analyses are afforded some treatment along with financial analyses but are not particularly integrated elsewhere.

Taking first things first, however, the accounting cycle is covered in the first eight chapters, or, including special books of original entry and mass data processing, nine chapters. This latter material is brief and, as the preface indicates, can be taken or left without injustice to other chapters. Several chapters are thus independent of others.

There is a further touch of flexibility. The more detailed aspects of some topics which are traditionally covered in the body of a text are, in this book, covered in appendices. These include discounting notes, reconciling bank accounts, handling petty cash imprest systems, approving vouchers, and recording payrolls. Each such appendix, to be pursued or not, is located with the chapter to which it relates.

Basic accounting theory is introduced early and is integrated throughout the text. Although broad principles are explored further in Chapter 26, discussions of those principles are interwoven through earlier chapters.

Articulation of a cost consciousness is aided by using the monetary asset grouping for cash, receivables, and temporary investments—the end results of business operations. The other assets then fit into an expired and unexpired cost approach, all costs to benefit the business in the short-term or long-term of future operations. Inventories, like other prepayments, expire. The first illustrations of depreciation as an expired cost are shown, pedagogically, with direct credits to the asset accounts. *Monetary asset*, as used in the above

context, is helpful; its scope is a little different here than in the context of purchasing power adjustments.

As in the case of cost absorptions, there is also a disciplining towards the use of financial data. *Planning, predicting, and the future* are bywords.

Compound interest and present-value formulas are explained; two tables accompany the material.

Long-range planning and capital budgeting are presented in general terms but also in the depth needed to explain both the sunk cost concept and the investor's or present-value method of appraising the rate of return on investments. Actuarial formulas are applied in the illustrations. The payoff method, as a simpler device, is presented in the context of its limitations. Even the gain from interest on deferred income taxes, the economic gain from accelerating depreciation, is brought into these materials.

Care is taken to warn the reader that the technical computations for alternative investments produce only the dollar evaluations in an arena of other factors. The teacher of this material might nevertheless do well to assign both readings and incisive short questions in lieu of longer problems for fear of over-indulgence (not encouraged by the authors but by the nature of the material) in techniques at the cost of conveying the breadth of the concepts in this introductory course. This text's questions and problems on the subject are short and adaptable; its longer problems on this are grouped with the cases.

The text reflects an obvious search as to the extent of statistical material which may feasibly fit into a basic accounting course at this time. There is a description of the mean, median, and mode. Generally, however, where averages are used throughout the text, space is not taken to discipline the reader into questioning the method or the typical aspect of the average. In discussions on the variability of expenses the text distinguishes between dependent and independent variables, illustrates the scattergraph, and commends the reader to statistics texts for the method of least squares. Different types of graphs are presented. The analysis material is thorough and the techniques are well presented with subjective comments. Most of this, however, is of the financial variety, including ratios, statements of marginal income, break-even charts, extensive work on turnovers, percentage comparisons, rates of return, variance analysis, forecast and flexible budgets, and the flow of cash and working capital, including source and application material. The receivable and inventory chapters do not suggest the use of statistical techniques. Sampling is not mentioned in the material on testing perpetual stock records.

Expenses and losses are identified as separate segments of expired costs. Allocating costs to periods is distinguished from allocating them to products. Fixed and variable expenses are distinguished from controllable and noncontrollable expenses. Job-order and process costing are developed, followed by material on direct and full costing and analysis of variances.

There is lengthy and thorough coverage on cash, receivables, liabilities, and inventory and depreciation theory and methods.

Internal control is placed in context at frequent points, with more than passing attention. There is a full chapter on estimating the value of a business, including actuarial applications.

Considerable choice was involved in selecting the material for a full chapter on federal income taxes. The selections are consistent with the management approach of the text. There are illustrations, for instance, of integrating the income tax with problems on preferred stock versus bond financing and on alternative equipment investment decisions. Differences between book and tax accounting are presented, as are methods of accounting for income taxes. The chapter perhaps includes more topics than are consistent with the thorough treatment afforded materials in other chapters, but the selection is good and there is a discreet absence of material on itemized deductions and preparation of returns.

There is a wealth of questions, problems, and cases following each chapter.

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Washington State University

FELIX KAUFMAN, *Electronic Data Processing and Auditing* (New York: The Ronald Press Co., 1961, 180 pp., \$6.00).

The purpose of this volume, an outgrowth of a doctoral dissertation, is to explain in lay language (as nearly as is possible) to lay readers the use of electronic data processing in an accounting system. Addressed to internal auditors, independent certified public accountants, controllers, systems people, and executives concerned with the reliability of the data produced by electronic systems, the author delineates the use of electronic data processing for various functions.

The discussion centers around control. Enough of a description of the hardware is presented to acquaint anyone not familiar with computers with the basic purposes and functions of the equipment. The author uses the AICPA booklet, *Internal Control*, as a take-off point and ties in the various charts therein to related procedural flow charts for an electronic data processing system. Internal control and audit trails are fully discussed. Particular emphasis is placed upon the inseparability of internal control procedures from the electronic data processing processes.

Chapters 1 and 2 are devoted to a short exposition of the problem of control in electronic data processing and the nature of electronic data processing. Chapter 3 contains a good explanation of the necessary planning that goes into the devising and programming of an electronic system. There is also a discussion of the "decision-making" abilities and inabilities of the computer and the controls that may be placed around the console and the console operator, one of the weak points of any electronic system.

The author next sets up the payroll function (time-keeping, cost distribution, payroll, accounts payable, cash disbursements) and the sales function (orders, credit, inventory control, billing, accounts receivable),

according to the Institute charts in *Internal Control* and relates them step by step to procedural flow charts. Chapter 5 contains similar discussions for accounts receivable (including cash receipts), purchasing, and cash disbursements.

Chapter 6 contains a discussion of redundancy as it may be used in the computer. More information may be processed than is necessary or more processing may be done than is theoretically necessary. The purpose here is to include internal checks in the computer to add to the assurance of the reliability of the data produced. The reliability in movement of data is discussed in Chapter 7, with controls of the data both without and within the machines being highlighted.

The effect on internal control is considered in Chapter 8. The author points out that such a system, instead of combining many activities which auditors like to see separated, in effect multiplies manifold the separation, since "each computer step can be looked upon as an independent operation. In the course of executing a program involving perhaps thousands of steps, it accomplishes each without regard to the step it has just performed or the one it is about to perform."

In Chapter 9 the author discusses audit trail conditions. He considers the storage capacity of various machines and the relative costs of maintaining files of historical information. He also discusses the accessibility of information and the necessity of obtaining printouts. Since many systems now report primarily on an exception basis, much of the information formerly requested by auditors is just not available. He states, "At the present, and certainly in the near future, prior transaction data or previous postings will not usually be a part of ledger records." Alternative means of obtaining the information or otherwise satisfying the auditor are disclosed. In many instances the auditor should see that the minimal information he does require will be included in the programming. Certain it is that the auditor should not call continuously for information that ties up the processing system.

The concluding chapter is a short essay on electronic data processing and control problems in general. Throughout the book, and in this chapter, the author foresees necessary changes in the organizational structure of business. Some divisions and separations of function that have been installed as factors in the internal control system will no longer be needed. The computer system with its internal checks will alleviate the need for these separations.

This slim volume should be preferred reading for all who are not familiar with electronic data processing but who may have contact with it in the future. The author has a lucid style and uses a minimum of "jargon." Controls are stressed throughout. The use of the Institute charts aids the reader in tying the controls into the computer system. This should interest not only auditors but all who design programs or who use the end-product of the system.

In the first chapter the author states that it would be premature to present a detailed consideration of the design of audit programs for electronic data processing systems; nevertheless, it would appear that at least an

illustration of a portion of such a program might have been included. It would have heightened interest in the text material. Certain it is that such programs are in use.

Much of the foreboding concerning electronic data processing arises from the mystery surrounding the computer, and from the different "language" used by those intimately familiar with it. This book dispels much of the mystery and translates some of the language. If for no other reasons it is a worthwhile addition to the accountant's library.

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OSCAR S. NELSON and RICHARD S. WOODS, *Accounting Systems and Data Processing* (New York: South-Western Publishing Company, 1961, pp. xii, 643).

As the title implies, this book attempts to deal with the problem of the effects of mechanization on accounting systems and on accounting procedures.

The first eight chapters are concerned with the general area of developing, organizing, and using accounting data. This section of the book is highly mechanical and develops a great amount of procedural detail which might be helpful only to the vocationally minded clerk. Certainly, much of this material would not be helpful or worthwhile in a college classroom in accounting. Much space is devoted to pictures, reproductions of cash register tapes, and other routine business forms. The narrative material, though clearly written, deals principally with the mechanics of office practices.

The next nine chapters discuss the process of analyzing and improving accounting systems. Here, again, the development of the problem is routine and elementary. Great stress is placed on cash procedures; sales, order and billing practices; purchase methods; payroll mechanics; and some cost accounting activities. These chapters develop in great detail the mechanics of the office practices which might be followed. As a result, this section of the book would be of interest to a future bookkeeper or to one who is totally uninitiated in present day office routine. It would not be usable in a classroom situation unless the course is completely oriented to vocational training.

The first 17 chapters of this book would provide little stimulation to the capable college student in accounting. Little effort is made to develop the problem conceptually or to develop the basic purposes of record keeping. Little attention is directed to the objectives of a good accounting system and how the system might be designed to meet the needs of management in its search for useful data. The emphasis, as already indicated, is placed upon the mechanics and procedures of how to operate a system rather than on the question of design of a system to satisfy the need for information.

The last eight chapters deal with the problem of automated data processing systems. Here, as earlier in the book, the emphasis is on how the equipment operates. Included in the discussion are both punch card systems (3 chapters) and computers (4 chapters). To this end, the material would be useful to a person in-

terested in either programming or in some other aspect of the mechanical operation of the equipment, such as coding or sorting. The last chapter in this section on systems review and installation for automatic computers is a good chapter in terms of both approach and contents. It takes a very realistic approach to such problems as system evaluation, training of personnel, debugging the system, and so on.

Over-all, this book is too mechanically oriented and is overly concerned with procedural details of office activities. It would be a valuable introduction to anyone not familiar with office practices or for those interested in the bookkeeping control aspects of a typical business unit. I doubt that it would be stimulating for a college classroom because of the de-emphasis of the concepts and objectives of system design, installation, and evaluation.

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WARDE B. OGDEN, *The Television Business: Accounting Problems of a Growth Industry* (New York: The Ronald Press Co., 1961, 197 pp., \$6.00).

Based upon his experience in an industry comparatively few accountants are familiar with, Mr. Ogden presents and discusses the business, accounting, and financial practices found in the production, distribution, and broadcasting of television programs. He "sets the stage" for his discussion of accounting practices by briefly tracing the development of the industry, indicating its significance in a modern economy, and explaining how television films are produced. He then enters into an explanation of basic methods of accounting for production costs and film revenue. A sample chart of accounts is included in this initial explanation, accompanied by appropriate comments and descriptions of the revenue and cost items to be recorded. The discussion is supplemented with an analysis of the industry factors which have influenced choices of accounting methods.

Mr. Ogden does not avoid the troublesome areas of accounting in the industry. He picks them out for discussion in preference to the ordinary. In the chapter on "When to Record Revenue," he chooses for discussion the recognition of network and syndication revenue over royalties, exploitation fees, and other incidental revenue. In his discussion of this problem he presents the background of a typical network contract and a typical syndication contract, the pros and cons of five different methods of recording the revenue from these contracts, and chooses the one which he considers the best—that of recognizing income to the producer when the right to receive it arises from compliance with the provisions of the contract with the purchaser. He emphasizes that any fair determination of income requires an appropriate matching of costs with revenue.

Approximately one-fifth of the book is devoted to an explanation of the amortization of film production costs, the techniques of constructing appropriate amortization tables, and the specific problems facing the producer in making a choice of amortization meth-

ods. Two principal theories of amortization are discussed. They are described as (1) the cost-recovery theory and (2) the flow-of-income theory. Under the first theory no profit would be recognized until all costs have been recovered. Under the second, costs would be amortized in a pattern similar to the flow of income. The author develops the subject with simple non-technical illustrations and discusses the advantages and disadvantages of each method. Throughout, he sticks to his policy of discussing major problems; in each instance, pointing out the cause of the problem, the effect of it on income, the ways in which the industry has met it, and the alternative he considers best. He dispenses with the cost-recovery method in an adequate five page coverage and launches into the flow-of-income theory. The author shows how the experience of a producer can be used to develop basic patterns for matching film costs against the earnings of those films. Simple arithmetical illustrations and graphs abound in the discussion, and it should be easily followed by a layman. Of general interest are the comments on the "salvage" value of films and the portion of cost described as "format"—that "combination of story material, dramatic handling, cast of characters, or other qualities which give the films an unlimited ability to earn revenue." The author takes a dim view of assigning salvage values to films and is not enthusiastic in defending the allocation of part of the purchase price of a film as a recognition of format.

In the latter part of the book the author gives consideration to the factors affecting station operation and to methods of station accounting for revenue and film costs. As in earlier chapters, Mr. Ogden relies heavily upon his personal experience and knowledge in presenting the common problems of stations. His discussion of these problems and proposed solutions to them is quite explicit and easily followed. One problem that he devotes considerable time to is the matter of barter transactions, situations in which stations receive exhibition rights to groups of theatrical films for three or more years with little or no limitation as to dates and frequency of exhibition in exchange for broadcasting for the syndicator a given number of spot announcements. Little or no cash is involved on either side. A hypothetical barter transaction illustrates the advantages to the station and the syndicator and is followed by a discussion of the accounting choices available to the syndicator and to the station.

Financial statement presentation is the topic for the last chapter. The discussion of this centers on the presentation of financial information to outsiders. Of particular interest is the matter of presenting television films on the balance sheet and the method of valuing them. Here, again, the author's personal experience and knowledge of the industry enable him to present the views of those in the television industry as well as his viewpoint as an auditor.

The book should be of interest to accountants, to people in the television industry, and to persons outside the industry who would like to know something of the business end of getting programs on their television screens. A twenty-seven page glossary of televi-

sion and accounting terms gives the book added value and increases its readability.

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ROBERT J. SMITH, *Preparing for the CPA Examination, Problems, References, and Solutions* (Belmont, California: Wadsworth Publishing Co., 1960; Vol. 1, 374 pp., \$5.95; Vol. 2, 525 pp., \$4.50).

Anyone who has conscientiously struggled to set course assignments which will effectively prepare students for professional examinations is aware of the dearth of good up-to-date examination material. *Preparing for the CPA Examination* is a welcome contribution to the solution of such problems. It has been designed specifically for those planning to sit for the uniform Certified Public Accountants' examination, but its usefulness is equally appropriate for all professional public accounting bodies.

Since the book was intended to be an instructor's and examination candidate's tool, it is appropriate that the author provided for great flexibility in its use. The chapter sequence and content of the book have been so organized that depending upon the instructor's or candidate's inclination, the topical content of work assignments can be varied or concentrated. Within each chapter, or unit as the author terms it, moreover, the difficulty of the problems assembled covers a full spectrum—from the simple presentation of fundamentals to the complex intricacies of reality. Thus the book should prove appropriate whether used to provide assignments for a review course lasting an academic year or a shorter coaching course taken just prior to writing the examinations.

Having commended the author for filling a noticeable need, it may seem unjust to criticize him not for what he included but for what he omitted. But these omissions are sufficiently critical to be minor defects of the book.

In the section on suggestions for solving CPA problems the author very rightly stresses the vital importance of developing "proficiency in discerning the interrelations of all the points in a problem and handling them in an integrated manner." But the advice which the author proceeds to dispense relates not to proficiency of discernment but to proficiency and speed in presentation. These latter are admittedly necessary qualities of examination candidates but, if Canadian experience is a reasonable guide, the major defect of candidates is inability to analyze effectively—inability to identify the specific character and requirements of a problem. They lack the very proficiency of discernment of which the author speaks. But on how such proficiency is acquired the author is silent.

The other feature which strikes a foreign reader is the heavy dependence upon textbooks in the recommended assignment readings. Since the author premises the students have had at least intermediate accounting, cost accounting, auditing and income tax, it is reasonable to assume the students have read a number of the textbooks. *Are they not now ripe for some of the litera-*

ture of the profession? Couldn't they now read with great professional benefit and examination productivity such books as George O. May's *Twenty-five Years of Accounting Practice*, or the report of the study group on *Changing Concepts of Business Income*, or, possibly, some of the accounting literature originating outside the United States? This latter aspect is particularly appropriate in view of the increasing occurrence of foreign subsidiaries of U. S. companies.

As mentioned earlier, the omissions are minor defects. *Preparing for CPA Examinations* nevertheless is a welcome addition to the material available to instructors of review or coaching courses for public accounting professional examinations.

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HOWARD F. STETTLER, *Auditing Principles: Objectives, Procedures, Working Papers*, Second Edition (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1961, 747 pp., \$11.35).

"The creation of a readable, easy-to-understand treatise that is stimulating and possesses a strong practical flavor has been the principal goal in writing 'Auditing Principles,'" so cites Professor Howard F. Stettler in the opening sentence of the preface of his second edition. This was stated to be the primary objective of the first edition and has been successfully carried through in this second edition. The revised text has continued "the approach of the first edition to the problem of corroborating statement figures through an enumeration of the auditor's objectives."

The general pattern and approach of the first edition have been retained; however, the second edition has been up-dated to include recent developments covered in the pronouncements of the Committee on Auditing Procedure of the American Institute of Certified Public Accountants. It represents a substantial improvement over the original publication in that there is a more complete and current coverage of such dynamic and constantly changing subjects as:

- (1) *Internal Auditing*—This topic has been expanded to a full chapter in order to permit a more thorough treatment of an important management function. Considerable reference is made to selected excerpts from actual reports prepared by the internal auditing department of a large aircraft manufacturing company.
- (2) *Accountants' Legal Liability*—New material has been added to include a fuller examination of the legal responsibilities of the accountant with special reference to several leading court cases.
- (3) *Statistical Sampling Techniques*—The development of new techniques in the inclusion of estimation and discovery sampling has challenged the author to include a full chapter on the subject of "Statistical Sampling Techniques And The Auditor."
- (4) *Electronic Data Processing*—The author has included additional reference to this seeming mysterious area now facing the public account-

ants' future audit programs. (Whether this reviewer can agree with the author's statement that "the independent auditor will undoubtedly find that the seemingly complicated problems arising out of the introduction of electronic methods of classifying and summarizing business data will also prove to be less troublesome than at first seemed likely" is still somewhat conjectural!)

(5) *Management Advisory Services*—A new chapter has been added to develop more fully the "M.A.S." functions which are currently receiving more prominent attention by members of the public accounting profession.

As in the first edition, the core chapters include "Internal Control," "Standards of Statement Presentation," and "Audit Objectives and Procedures." The chapters contain substantial illustrative audit working papers (which serve as basis for last year's working papers for a "Practice Case For Auditing" by the co-authors, Sherwood W. Newton and Howard F. Stettler) and a summary of materials pertaining to three "Case Studies in Auditing Procedure," published by the American Institute of Certified Public Accountants. Each chapter includes a substantial number of "Review Questions," "Questions on Application of Auditing Standards," and "Problems" (many from the C.P.A. examinations).

The author points out in the preface that "relatively little space is devoted to the discussion of accounting matters on the assumption that the reader has mastered the study of accounting before undertaking the study of auditing." If only this were true! We teachers in basic "auditing" courses find that only too often our students lack sufficient background in accounting principles to grasp the real objectives of the auditor's work; therefore, we feel that continued emphasis on accounting principles is most desirable—even in the auditing textbooks!

Two outstanding appendices and "the usual" (and very important) third are noted as follows:

- Appendix A Internal Control Questionnaire
- Appendix B McKesson & Robbins Fraud: A Milestone
- Appendix C Rules Of Professional Conduct

The author has done an outstanding job in this revision. The text should appeal to the instructor and student alike as a very practical and meaningful approach to the auditor's work. Certainly, it provides an awareness of the current problems confronting the independent public accountant and it offers a great deal of well-organized material as well as sufficient and well-chosen questions and problems. This revised edition of Professor Stettler's *Auditing Principles* should prove to be an excellent text for a sound basic course in "auditing."

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RUFUS WIXON and ROBERT G. COX, *Principles of Accounting* (New York: The Ronald Press Co., 1961, pp. v, 765, \$7.50).

This new text book, designed for the first year course in accountancy, is a major contribution to accounting education. It successfully combines in a sensible, well-balanced fashion the traditional approach to elementary accounting with attention to the increasing need for greater emphasis upon the managerial control and analytical aspects of accounting. The authors intended this book "to provide a complete course in basic accounting principles which will satisfy the requirements of both accounting majors and non-majors," and it certainly should serve both of these groups very well.

The thirty chapters are arranged in six major sections as follows:

- Basic Considerations (3 chapters)
- The Accounting Cycle (7 chapters)
- Elaboration of the Recording Process (4 chapters)
- Accumulation and Classification of Financial Data for Managerial Control (8 chapters)
- Accumulation and Classification of Financial Data for Financial Analysis (4 chapters)
- Special Measurement Problems (4 chapters)

The authors have successfully reduced the emphasis upon such matters as the accounting cycle, transaction analysis, and the recording and summarizing functions without eliminating these essential elements entirely. By moving the student logically and rapidly through these techniques the authors are able to take him more deeply into theory matters and into areas that have not been included in the traditional first year course. The basic accounting techniques are introduced in a logical sequence and are well integrated with sound discussions of the accounting ideas that explain the "why and how" of bookkeeping procedures. In the first three chapters the authors take the students through transaction analysis, the use of accounts, debits and credits, and the basic statements, and have included with the material some well-written, soundly oriented discussions of the going concern concept, periodic matching, cash vs accrual accounting, the cost concept, and the nature of revenues and expenses.

The adjusting process is introduced as early as the second chapter and comes quite naturally. The first time the purchase of supplies is mentioned, it is explained that the supplies on hand constitute an asset and the amount of supplies used can be transferred to an expense account at the end of the period. The major consideration of the adjusting process comes in chapters 6 and 7 and is followed by a more detailed study of financial statements, the closing process, and the use of the work sheet.

The remaining chapters on the basic accounting techniques are devoted to the subdivision of ledgers and journals, the use of petty cash funds, the voucher system, payroll records and procedures, and manufacturing accounting. One interesting example of the way Professors Wixon and Cox have successfully reduced the space devoted to subjects that often receive extensive treatment in elementary text books is a two page section

in Chapter 7 on the correction of errors. They very clearly and distinctly illustrate how an incorrect entry can be analyzed and the proper entry developed in order that the adjustment required to correct the records can be made. There is still a great deal of book-keeping in this text, but the student should learn substantially more than just bookkeeping procedures even in these early chapters. These basic elements take almost exactly the first half of the text.

A second semester course would start with the material on accumulation and classification of financial data for managerial control. There are eight chapters on managerial and cost accounting in addition to a chapter on manufacturing accounting. Among these eight chapters are chapters on cost variability and break-even analysis, job order cost systems, process cost systems and standard cost, and budgetary control. A very interesting and worth-while chapter in this group is labeled "Concepts of Cost for Managerial Purposes." This entire chapter is devoted to the discussion of the many concepts of cost used in managerial accounting. Included in this discussion are comparisons and discussions of (1) historical and replacement costs, (2) direct and indirect costs, (3) sunk and out of pocket costs, (4) escapable and inescapable costs, (5) economic and accounting costs, (6) controllable and non-controllable costs, and (7) average and marginal costs. The usual concepts of fixed and variable costs are thoroughly covered in the other chapters.

The financial aspects of accounting control and analysis are covered in four chapters: Cash Control and Working Capital Analysis, Analysis of Financial Statements, Capital Structure—Long Term Debt, and Capital Structure—Owner's Equity.

The three chapters on special measurement problems include such subjects as the nature of business income, periodic measurements, all inclusive and current operating performance concepts of periodic income, inventory methods, depreciation methods, measurement of income for tax purposes, the conflict between business income and taxable income, and an entire chapter on the problems of price-level changes. Professors Wixon and Cox have not only done a good job with the typical elementary material but in addition have succeeded in moving far beyond this material both in depth and in scope.

The text material is well written and contains good illustrations where needed. Typographical and other incidental errors are almost non-existent. The type and style are excellent. The text is quite modern in both subject matter and in terminology.

There are approximately ten problems at the end of

each chapter. These problems vary in length and difficulty and provide an excellent choice of problem material. There are also study questions at the end of each chapter and these are divided between the typical review questions plus a liberal number of thought-provoking discussion topics.

Two volumes of working papers and a practice set are available to accompany this text book. The first volume of working papers (363 pp.) is for the solution of problems for Chapters 1 through 14 and the second (319 pp.) is for chapters 15 through 30. There are perforated pages in these books for every problem in the text. Inasmuch as most instructors will assign substantially less than half the problems in any one semester, and because many of the problems require only the ordinary note-book type paper or simple two-column journal paper, many instructors will undoubtedly decide that these work books are unnecessarily expensive for the problems that do require special forms or special rulings. Also the pages are very difficult to remove from these work books and the spacing of the columnar rulings is not entirely uniform.

The practice set is a corporation problem covering a period of one month. It includes the use of special journals, general and subsidiary ledgers, a twelve column work sheet, and statement preparation. The practice set is in two separate booklets. The first contains the transaction data, the general and subsidiary ledgers with account titles and opening balances already entered, and the forms for the financial statements. The second includes the general and special journals with all column headings filled in, and the work sheet with the accounts already listed.

Only a few minor problems have been encountered in teaching from this textbook. The chapter on the work sheet follows the two chapters on financial statements and the closing process. Many instructors and students would prefer to discuss the work sheet before drawing up the balance sheet and income statement. The authors have labeled their method of adjusting for prepaid and accrued items the "fix-it approach" to adjustments. The method is good and easily followed, but some people may object to the term "fix-it."

Some may feel that the early part of the text moves too rapidly and that the general scope is too broad for the typical freshman or even sophomore student. However, if this does prove to be the case, it should be easily rectified by omitting some of the later chapters from the first year course.

DONALD H. SEADDEN
Associate Professor of Accountancy
University of Illinois

General

ARTHUR B. CURTIS, JOHN H. COOPER, and WILLIAM JAMES McCALLION, *Mathematics of Accounting*, Fourth Edition (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1961, pp. x, 566, \$11.00).

This popular book which first appeared in 1925 has gone through three revisions and numerous printings.

It was designed to fulfill a dual purpose as a text for accounting, finance, and business mathematics students, and as a handy reference for accountants. The present revision was made by Mr. McCallion, a professor of mathematics at a Canadian university. The three main objectives of the revision were: to bring a major portion of the content up-to-date, to introduce a sound mathe-

mathematical basis to business mathematics, and to make the book more useful to Canadian readers.

The book is divided into two major parts. The first part is entitled: Commercial Arithmetic—Simple Interest Applications. The applications are in such areas as inventories, insurance, statement analysis, goodwill, partnerships, and public finance. The second part is entitled: Commercial Algebra—Compound Interest—Applications. Included are materials on fundamental algebra, logarithms, index numbers, progressions, annuities, bond valuation, depreciation methods, permutations, combinations, elementary probability, and life insurance. The appendix has tables on weights, measurements, and values.

Although much of the material remains the same as in the preceding editions, there have been some improvements. There is a better arrangement of chapters, a clearer explanation of formulas, and a more extensive use of time scales, all of which are valuable to understanding. A small amount of subject matter relating to building and loan associations, foreign exchange, and payroll records which formerly appeared is not included in this edition, whereas materials on installment plans and personal loans have been added. In a chapter covering most depreciation methods, it is unusual that no mention is made of the now popular double-declining balance method. A few tables for fractional periods, added to the appendix, were neither appropriately labeled nor adequately co-ordinated with the text material.

Since the previous edition of this book in 1947, much has been written on the need for more and better mathematical training of the accountant and other business administrators. Substantial changes in the college mathematics curricula for social scientists and others have been suggested. For the most part, the materials covered in this book and similar ones involve relatively simple calculations. This type of mathematics is inadequate for the vital decisions of business leaders in a fast moving world. The materials would be appropriate mainly for a vocational approach, or for students who could not handle a more rigorous mathematical program. Such a level of mathematics tends to deny the presence of electronic computers in the business world. A reorientation of this book to include the new type of mathematics required is recognized as difficult, but further strides could well have been taken in this direction.

The application of mathematical tools and the use of electronic equipment have only begun to show their potentiality in the business world. Management must be able to communicate readily with the statistician and the mathematician. Accounting leaders are already deeply involved in statistical applications to accounting procedures, auditing, and managerial controls. If the accounting profession wishes to continue sharing importantly in the decision-making responsibilities of business, we must have much more mathematics than this book implies. It is almost paradoxical that, while mathematics has come to play an increasingly more important role in business, the materials in this book have become relatively less important. The publication is

still valuable, but a better title might be "Elementary Mathematics in Accounting."

DONALD L. RICHARD
Associate Professor of Accounting

The University of Missouri

W. EDWARDS DEMING, *Sample Design in Business Research* (New York: John Wiley & Sons, 1960, pp. xx, 517, price \$12.00).

The central purpose of *Sample Design in Business Research* is to present a detailed explanation of a special type of sample design which Deming calls "replicated sampling." This type of sampling design originated with Mahalanobis in 1936 and was referred to under the name of the "Tukey plan" in Deming's earlier book, *Some Theory of Sampling*. No claim is made that any new theory is developed, but rather that it is a combination of features well known separately. Easy computation of the estimates and of their standard errors is one of the outstanding features of replication, and should be extremely welcome to practicing statisticians. While no statistician now disputes the principle that a valid standard error should be shown for any estimate from a sample, too many estimates have been presented without standard errors because of the extremely laborious computation. This book offers an answer to this difficulty.

The discussion of replicated sampling designs is in Part II, covering 272 pages. Part I, called "Standards of Statistical Practice," discusses the making of surveys and basic problems of sampling, but it assumes that the reader already has considerable knowledge of statistics. Part III attempts to supply the theory that has been omitted or treated rather lightly in Part II.

The ten chapters in Part II are devoted to a detailed discussion of replicated sampling designs. Chapter 6 introduces the subject and describes the distinguishing feature of the design as two or more subsamples drawn and processed completely independent of each other. This design makes possible an easy estimation of the standard errors, and evaluation of the bias in the estimating procedure. Some simple sample designs are used to illustrate principles and demonstrate methods of computation, and a number of exercises are presented. Chapters 7 through 9 give a number of examples of sample design drawn from the author's wide experience as a consulting statistician. Two examples involving the study of ledger accounts, and one involving the evaluation of materials in goods in process inventory, are of particular interest to accountants.

Chapter 10 uses as an exercise a survey of a small urban area to illustrate the application of the method. Chapter 11 extends the methods to more complex situations and develops the theory and procedure in detail. The remaining chapters in Part II are given over to more technical problems, including stratified sampling, and Part III discusses various fundamental theorems of bias and variance that were not developed in the earlier chapters.

Since sampling procedures are becoming increasingly important in the work of accountants, this volume by

an outstanding authority on sampling should be given serious consideration as a valuable addition to the growing literature on sample design. With business education putting an increasing emphasis on statistics, most accountants may before long be expected to have an adequate background in the fundamental principles of sampling and to be able to make effective use of a book of this nature. It is important to remember, however, that the proper use of statistical techniques calls for a high level of professional skill, and if an accounting firm does not have this level of competence on its staff, it would be wise to use a consulting statistician to work on problems of sample design. Deming's very extensive practice demonstrates how such a consultant may be used effectively.

JOHN R. STOCKTON, Director
Bureau of Business Research, and
Professor of Business Statistics

The University of Texas

GRACE V. LINDFORS, Compiler, *Intercollegiate Bibliography (of) Cases in Business Administration, Volume Five* (Boston, Mass.: Intercollegiate Case Clearing House, c/o Graduate School of Business, Harvard University, 1960, 115 pp., No price given).

Before the Ford Foundation, the American Association of Collegiate Schools of Business, and the Harvard Business School began the collaborative enterprise which results in the present volume, there was no central attempt to provide an inventory of cases for use in business instruction. This volume is testimony to the success of the experiment. In it, as in its four predecessor volumes, data are provided about new cases which have been prepared by faculty members of cooperating universities. The cases are listed under the following broad categories: 1. Controls, Accounting and Statistical, 2. Finance and Financial Institutions, 3. General Management-Policy, Social, Economic, and Political Aspects, 4. Human Aspects of Administration, 5. Marketing, 6. Production.

For each case listed there is provided a brief abstract of content, the course or subjects in which it may be used, the geographic location, the industry, the dates of the events described, the persons involved, and sufficient identifying information so that the user may order copies of the case. In addition, there is an alphabetical list of case contributors, a directory of participating academic institutions, and full details for ordering samples or multiple copies of cases. Other valuable features include a guide to widely used cases in volumes 1-4 of this series, a bibliography of 16 mm. films suitable for group discussion and a list of case books and their publishers. Another useful appendage, is the recently published *Selected Cases from Volumes I, II, III and IV* which provides an inventory of those cases most frequently used by business instructors.

One crucial concern of business education is the mounting volume of published material which has relevance for instruction and research. Considering that more than 2,000 cases have been cataloged and described since this series has begun, one can at least be

optimistic about the state of bibliographic control of business case materials. For faculty members who employ the case method of instruction in whole or in part in their efforts in control, accounting and statistics courses, this series provides a matchless service of incalculable value.

PAUL WASSERMAN
Associate Professor of Bibliography
Cornell University

H. B. MAYNARD, Editor-in Chief, *Top Management Handbook* (New York: McGraw-Hill Book Company, Inc., 1960, 1236 pp., \$17.50).

The title of this book is somewhat misleading. It is not a handbook in the usual sense in that it is not a compendium of "how-to-do-it" techniques. It is, rather, a collection of articles about the art and science of management written by practicing executives, mostly from the business world. An attempt was made in the selection of the authors to get a cross section of industrial managers. This attempt was not entirely successful in that outstandingly successful executives from well known, large corporations seem to predominate. Truly small businesses do not seem to be adequately represented.

The objective of the book as stated by Dr. H. B. Maynard is "to help any manager . . . distinguish clearly the task of managing" in order that he can then "strive to perfect himself in performing the several elements into which the task of managing may be subdivided." Assuming that one reads carefully, conscientiously, and with an extraordinary degree of perception and then properly interprets and applies to his own situation, the *Handbook* can be judged to have achieved its objective. While many fundamental "truths" are voiced in the articles, there are enough individual philosophies, approaches, and techniques expressed to trap the unwary who might foolishly assume that because something worked in X Company it should work in Y Company.

This is a handbook for *top* managers. Most of the articles have been written by chairmen of boards or presidents. Since many of these executives came up "the hard way" (as revealed by brief biographies preceding each article), the element of practicality is not lacking. A nice balance between the everyday problems of operating a business and the broad, general problems of top management is established. Administrative management predominates, but operative management is not seriously neglected.

The first section of the book deals with the general nature of management. An historical perspective of management is presented, and the difference between administrative and operative management is clearly established. Refreshingly—in these days of operations research and quantitative decision making—the *art* of management is not neglected. The president's job is investigated in some detail.

Parts two, three, and four follow a logical pattern of establishing objectives, gathering and processing information, planning and decision making, organizing,

actuating, communicating, motivating, directing, and controlling. Most of the articles in these sections treat the subject matter in a competent manner. Some are rather poorly organized and most do not approach an exhaustive treatment of the subject. The function of organizing, in particular, is underdeveloped. The articles dealing with measurement and control are excellent. Part five which is entitled "Managing the Future" seems to be concerned more with the function of staffing—training and the development and maintenance of a creative atmosphere.

After dealing fairly successfully with the *managerial* functions in the first five sections, the book takes a new tack in part six with its treatment of *business* functions. A format of one article dealing with administrative aspects followed by one dealing more with the operative aspects is used in this section. Rather comprehensive treatment is given to the functions of research and development, production, marketing, finance and control, personnel, public relations, and legal activities.

Part seven which is entitled "Other Aspects of Top Management" might well be called "Miscellaneous." No adverse criticism is implied, for some of the best articles in the book are to be found in this section. This smorgasbord includes such topics as relationships with the board of directors, managing a decentralized organization, conducting management meetings, the use of operations research, participation in management organizations, the influence of government, and the use of outside services. Two very miscellaneous—albeit worthwhile—articles deal with the functions of a university president and the role of the top manager's wife. The section includes several excellent articles concerning social responsibilities and corporate citizenship.

Two major shortcomings can be cited—one is largely unavoidable, and the other could have been avoided. It would be extremely difficult, if not impossible, to have avoided the considerable overlapping and repetition which must result when various authors deal with closely related subjects. Careful planning and rigid blue pencil could conceivably have reduced the duplication somewhat, but probably something would have been lost in the translation. The baby might have been thrown out with the bath water. The other shortcoming—failure to treat properly the element of leadership—is not excusable. Only in an indirect manner is this very vital factor dealt with.

On the asset side, the vast amount of experience represented by the authors of these articles must be recognized. They have earnestly tried to distill the knowledge they have gained through experience as managers. Moreover, most of them are very literate, articulate men. They deliver their messages in a rather direct, forceful manner. Some articles lack the organization and completeness one might expect of a professional writer, but as a whole they merit the reading time for the person who is interested in gaining a truer perspective of the nature and functions of top management.

L. D. BISHOP, Chairman

Department of Business Management

University of Oklahoma

R. GENE BROWN AND LAWRENCE L. VANCE, *Sampling Tables for Estimating Error Rates or Other Proportions* (Berkeley, California; Public Accounting Research Project, Institute of Business and Economic Research, University of California, 1961, pp. v, 219, \$6.00).

This book, consisting primarily of a series of sampling tables, preceded by a brief introductory text and several illustrative examples, is intended to aid and encourage accountants, auditors particularly, in the application of statistical sampling techniques. The tables provide a means to determine quickly the required size of a simple random sample upon which to base an evaluation of error rates or other proportions of a characteristic being investigated. Sample sizes for four confidence levels, 90%, 95%, 99%, and 99.7% are presented. Typical quantitative characteristics which can be estimated are: error rates, age of accounts, dollar amounts of adjustments, inventory values, and so forth.

"Statistical estimation" as opposed to "acceptance sampling" is emphasized. Attention is directed toward estimating the error rate instead of attempting to estimate whether a hypothesized or acceptable rate is or is not exceeded.

Unfortunately, in order to use this series of tables, the accountant is faced with unfamiliar and probably confusing terminology. However, the explanatory data on page 3 should aid in overcoming this obstacle. An effective summary discussion of "risk," "confidence levels," and "precision" as related to auditor's judgment is presented on this page. Page 3 should be of particular assistance and interest to students, auditors, and accountants who are in the early stages of the study of statistical sampling techniques. The case study "Confirmation of Accounts Receivable" and Chapter III, "Miscellaneous Applications of the Sampling Tables," will aid to introduce and suggest applications of the tables.

An illustration quickly will suggest the nature, arrangement, and usefulness of the tables. History indicates that about 2% of the 35,000 accounts receivable of a public utility are over 60 days of age. The auditor desires to know the correct size of a simple random sample which will permit an estimation of the number of accounts presently in excess of 60 days of age. Further, it is assumed that the auditor wants his precision to be 3% and that he decides upon a confidence level of 95%. (These terms are explained on page 3 of the text.) Table II, page 35, contains the required data. The intersection of the 2% row and the 3% column indicates that the required size of the simple random sample is 83.

This book will be an effective spur in increasing the applications of statistical techniques in accounting areas and should be instrumental in converting some skeptics. The use of the book will save many hours in computing required sample sizes and further will prevent errors which often arise in such computations.

Taxes

HARROP A. FREEMAN and NORMAN D. FREEMAN, *The Tax Practice Deskbook* (Boston, Massachusetts: Little, Brown & Company, 1960, 581 pp. \$17.50).

The *Tax Practice Deskbook* is a gem. It is written in a lucid, nontechnical, and understandable style. The highly technical language of the statutes and regulations is translated into simple English. Many sections read like parts of an interesting novel, a novel difficult to lay aside after reading a few pages. Most taxpayers, tax practitioners, or tax specialists will enjoy using this book. Moreover, they would avail themselves of expert tax and legal counsel at a price no greater than the price of the book.

The chief attributes of the book are conciseness and practicality. Tax specialists, lawyers, accountants, and businessmen handling tax matters will find the volume to be of great help as a research tool in every area of tax practice from the preparation of a return to judicial review.

The chapters contain a complete table of contents, enabling the reader to see readily the scope of each tax topic. The book is liberally footnoted citing authorities, which facilitates research. In addition, at the end of each chapter is a selected bibliography of law review articles classified by chapter subdivisions. The work also contains an index covering the "A to Z" on tax matters and procedural steps and corresponding relevant tables of cases, statutes, Treasury regulations, rulings, and rules of court.

Chapter 1, "General Tax Practice," deals with the tools and theory of tax practice. Chapter 2, "Preventive Tax Practice," covers the why and how of tax return filing and ways of easing the tax burden. Chapter 3, "Facts, Facts, Facts," tells how to collect facts and when and how to prove them. Chapter 4, "The Internal Revenue Service," describes the organization and structure of the Service, its policy and attitude toward taxpayers, the powers of the Service, and its processing of returns. Chapter 5, "Deficiencies And Assessments," deals with the Service as an auditing and reviewing agency, states what should be done in the event of deficiencies and assessments, and shows how to negotiate and compromise.

Chapter 6, "The Tax Court," and Chapter 7, "The Justice Department And Tax Cases," discuss tax litigation in the various courts and delineate the role of the Justice Department. Chapter 8, "Refunds," embraces such matters as the claiming of refunds, pre-court procedures, choosing the court, and suing by whom and how. Chapter 9, "Appeals in Tax Cases," guides the reader in the appeal of tax cases from the Appellate Division to the Supreme Court. Chapter 10, "Common Procedural Problems," stresses the concept and purpose of a statute of limitations and tells how to avoid the effect of expiring time limits, collection, and interest. Chapter 11, "Penalty Cases," explains the civil and criminal penalties under the 1954 and 1939 Codes, the different types of cases, and the many investigating processes. Chapter 12, "How to Brief a Case," is the

concluding chapter and presents the fundamentals of the preparation and organization of a tax brief.

You will relish the authors' literary style, which gives warmth, color, and life to technical literature usually classified as "dry" reading. You might nibble at a few excerpts: "If facts can be clarified to the degree that the barber or the milkman would consider that a result should follow, the judge will probably arrive at the same conclusion." "Equity and fairness are to a brief what human interest is to a novel." "Always try to end on a note of triumph AND STOP." ". . . and there are millions of them, bless their fee-paying hearts." ". . . if I can write the facts, I don't care who writes the law." "The test of negligence is the reasonably, prudent man." ". . . because it is in a heads-I-win, tails-you-lose game." "A stiff back and braced feet are not the posture for negotiating, for the attitude of one side is invariably reflected in the attitude of the other."

Readers of this comprehensive book will be impressed with the authors' breadth of knowledge based on some twenty-five years of tax practice, research, and teaching. This useful reference volume is not an "if and but" book but one which tells you what to do with sureness, discretion, tact, and confidence.

ALFRED P. KOCH
Professor of Accounting

Lehigh University

C. HARRY KAHN, *Personal Deductions in the Federal Income Tax* (Princeton: Princeton University Press, 1960, 237 pp., \$5.00).

In this well documented and thorough study, Mr. Kahn evaluates the quantitative importance of each of the personal deductions in the Federal income tax structure. This appraisal is made, in each case, in the context of the historical background and the social, political or economic justification for the existence of the deduction. Recognizing that the various personal deductions are not consistent in underlying philosophy or apparent purpose, Mr. Kahn accounts for this inconsistency by reminding the reader that the deductions for interest, taxes, and casualty losses date back to the early income tax legislation of Civil War days, while the deductions for contributions, medical expenses, and child care expenses originated only in 1917, 1942, and 1954 respectively. Mr. Kahn's interest in the personal deductions is not limited to a factual quantitative analysis or historical narrative; rather he seems deeply concerned with the social welfare aspects of the tax deductions. Repeatedly he raises questions about the effectiveness of the income tax as a device for implementing governmental policy in the social welfare area. In the case of each of the personal deductions, he wonders whether the tax reduction is as effective a measure as would be a governmental expenditure program.

Mr. Kahn notes that personal deductions have increased from 8% of income (1918-21) to 13% of income (1953-1956), and that the relative importance of specific deductions has changed through the years. Interest paid has become relatively less important as a personal tax

deduction, whereas taxes paid has become relatively more important. In 1956, Mr. Kahn's study reveals, 37% of personal deductions taken were in the form of the standard deduction, 63% as itemized deductions. Of the itemized deductions, taxes constituted 25%, contributions 20%, interest 20%, medical expenses 14%, and other deductions 21%.

Mr. Kahn reminds the reader that personal deductions, which in 1956 aggregated \$34 billion, never have loomed as significantly as has the personal exemption, which in that year amounted to \$75 billion. The trend in the size of the total of the personal deductions claimed has been upward, however.

Mr. Kahn's study indicates that the ratio of personal deductions to income varies only slightly with income, and that only in the case of income in excess of \$100,000 is there a significant rise in the ratio of deductions to income. Interestingly, it is noted that there was a greater tendency for total deductions taken to rise more than proportionately with income in pre-war years. In either case, of course, the effect of the personal deduction is to dampen the progressivity of the tax structure. The revenue cost of the personal deduction provisions to the Federal government is over 25% of total tax revenue, and Mr. Kahn alleges that tax rates could be reduced by 5% if the personal deduction provisions were removed. Mr. Kahn cautions that this conclusion not be interpreted without qualification, however. He points out that were the personal deductions to be eliminated, some

of the items, philanthropic contributions, e.g., might be continued through additional government expenditure.

Noting the differing legislation backgrounds of the various personal deductions, Mr. Kahn examines their effectiveness in accomplishing their supposed objective. He suggests that deducted contributions are (on the basis of his evidence) considerably over-reported, and that there is no evidence that aggregate contributions depend appreciably on tax incentives. His findings indicate that even though all taxpayers do not itemize deductions, the personal deductions claimed for interest and taxes paid are remarkably close to the total of such items actually paid by individuals. The deductions claimed for medical expenses, on the other hand, were less than 30% of total medical payments by individuals in the later years under review. This discrepancy is of course to be expected, and he notes that the medical expense deduction is probably fulfilling congressional intent.

Mr. Kahn's study reflects his thorough and painstaking research. The findings and Mr. Kahn's interpretation of them are interesting and enlightening, and his book represents a contribution to our knowledge of the impact of certain facets of our Federal Income Tax structure on selected elements in our society and upon the Federal government.

PETER A. FIRMIN

Tulane University

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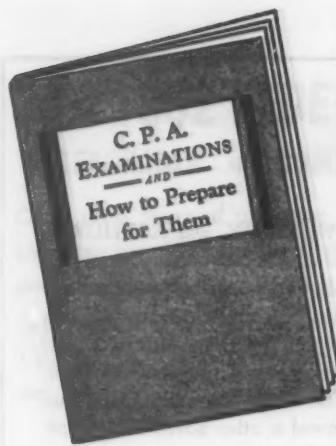
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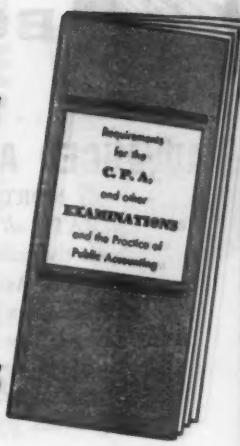
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